PROGRAM THEORY IN LEADERSHIP DEVELOPMENT: A STRUCTURED CONCEPTUALIZATION EXERCISE FOR THE LEAD NEW YORK PROGRAM

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PROGRAM THEORY IN LEADERSHIP DEVELOPMENT: A STRUCTURED CONCEPTUALIZATION EXERCISE FOR THE LEAD NEW YORK PROGRAM

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A review of the literature on leadership development indicated a disconnect between the practice of leadership development and its theoretical underpinnings. Many leadership development programs (and practitioners) operate without an explicit program theory to guide their work, resulting in interventions that are often haphazard in their implementation. On the other hand, many contemporary leadership theories are not contextualized, their constructs are not adequately explicated, and they are not developed using issues facing real-world organizational leaders, thus they are of little use to practitioners. This theory-practice gap has contributed to practitioner mistrust for the processes and outcomes of basic research, and a relative dearth of scholarly program evaluation research in this area.

A structured conceptualization technique, Concept Mapping, was used to both identify underlying constructs and develop a theoretical framework for the Empire State Food and Agricultural Leadership Institute, or LEAD New York, a two-year leadership development program for adult professionals in the food and agricultural industry. Program alumni and board members had an active role in identifying specific outcomes, conceptualizing the relationships among outcomes, rating the importance and feasibility of outcomes, and interpreting the data generated in this study. This method is participatory, action oriented, and grounded in a specific context. As a result, the program theory developed through this research is contextualized, explicit, and may be more readily accepted by practitioners in similar settings. Constructs

identified in this research were compared to those identified in other contemporary leadership theories, thus building on previous scholarly research.

This study identified 117 specific outcomes, organized into eight distinct constructs, and three regions of related constructs. Relationships between constructs were explored, as were participant ratings of importance and feasibility. The result was the explication of a theoretical framework for the LEAD New York Program. The results of this study suggest that LEAD New York is primarily a leadership skill-building program, but also indicated that the skills developed were highly social, complex, and inter-related. Findings from this study have both immediate utility for program planning (this study served as a process evaluation) and lay the groundwork for future theory-based outcome evaluation.

BIOGRAPHICAL SKETCH

Lawrence J. Van De Valk earned an Associate of Applied Science degree (cum laude) in Forestry from Paul Smiths College in 1985, a Bachelor of Science degree in Agricultural and Biological Engineering from Cornell University in 1987, and a Master of Arts degree in Teaching from Cornell University in 1989.

He is currently a Senior Extension Associate in the Department of Education at the College of Agriculture and Life Sciences, Cornell University, serving as Director of the Empire State Food and Agricultural Leadership Institute, or LEAD New York, a position he has held since 2001. He was previously Professor of Agricultural Engineering Technology at the State University of New York (SUNY) at Cobleskill from 1990 through 2000, and a department manager at Agway Cooperative from 1987 through 1988. While employed at the cooperative he completed the Agway Management Development Program, and is also a graduate of Class 6 (1995 – 1997) of the LEAD New York Program.

He is a 2006 recipient of the SUNY Chancellor's Award for Excellence in Professional Service, and the 2009 recipient of the Outstanding Leadership Program Director Award from the International Association of Programs for Agricultural Leaders.

To Beth, Jacob and Sarah – your sacrifice has been greater than my own in this pursuit, and your love and support means more to me than you could ever know. And to my parents – who instilled in us a sense of value for education, and a work ethic to pursue it diligently.

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And finally, thanks to my colleagues in IAPAL, who run outstanding leadership development programs in their own right, and who have always been eager to share their expertise and encouragement with the rest of the group, including me. You can all be proud of your role in shaping future leaders.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1

INTRODUCTION

The practice of leadership development has been in existence for decades and interest in the field of leadership studies continues to grow (Day, 2000; Dugan & Komives, 2007; Hunter, Bedell-Avers & Mumford, 2007; Muijs, Harris, Lumby, Morrison, & Sood, 2006). Recent decades have also seen a dramatic increase in the number of *leadership development programs* (LDPs) that seek to improve the leadership capacity of individuals, teams and organizations (Dugan & Komives, 2007; Kets de Vries, Florent-Treacy, Guillen-Ramo & Korotov, 2008; Mason & Wetherbee, 2004; Muijs, Harris, Lumbey, Morrison & Sood, 2006).

Unfortunately, there is a serious disconnect (i.e. theory-practice gap) between the practice of leadership development and its scientific foundation (Day, 2000). After examining recent research on leadership development, Day concluded that traditional training approaches aimed at "training individual, primarily intrapersonal, skills and abilities…ignore almost 50 years of research showing leadership to be a complex interaction between the designated leader and the social and organizational environment" (p. 583). Pfeffer (1997) argued that a conceptual problem exists within the field, in that the work of leadership development itself is not very well defined. Concerned about the typical implementation of leadership development initiatives, Zacarro and Horn (2003) went on to suggest that a focus on short temporal horizons (for the observation of outcomes), fad-driven thinking (e.g. the improper use of assessment instruments) and "practitioner mistrust for the processes and outcomes of basic research" (p. 778) contribute to the disconnect between practitioners and the theorists (i.e. leadership scholars) that would help them. Sobeck and Agius (2007) further suggested that some organizations developed and implemented LDPs haphazardly. Finally, based on a review of 55 LDP evaluation studies, Russon and

Reinelt (2004) concluded that many LDPs lack an explicit program theory altogether. Though some LDP practitioners undoubtedly design and implement programs based on implicit (often informal, poorly articulated) theories of how their programs should work, what is needed is the development of more substantive theory (Glaser & Strauss, 1965) and socially constructed theory of leadership education (Billsberry, 2009).

Problems do not lie solely within the practice domain, however. A wide variety of theories exist as to what leadership really is, and few authors agree on a definition of the term "leadership" (Bass, 1981; Daft, 2005). In many leadership studies, underlying constructs are inadequately explicated (Hunter, Bedell-Avers, & Mumford, 2007; Schriesheim & Cogliser, in press; Yukl, 1999). Zacarro and Horn (2003) also suggested that many contemporary leadership theories do not take context into account, nor are they developed using the dynamic and critical issues facing real-world organizational leaders, and are therefore of little use to leadership development practitioners. Parry (1998) argued that mainstream leadership research methodologies had been partially unsuccessful in theorizing about the nature of leadership as a social influence process. Billsberry (2009) also argued for greater use of socially constructed leadership theory, noting that students (or in this case, LDP participants) are valid observers of leadership in practice.

This theory-practice (or perhaps scholar-practitioner) disconnect has contributed to a relative dearth of scholarly LDP evaluation (Mason & Wetherbee, 2004), though interest in evaluating LDPs continues to grow (Martineau & Hannum, 2004). This theory-practice gap may be explained by a theory gap; i.e. perhaps extant leadership theories fail to fully capture the range of outcomes (or scope of work) that many LDPs seek to achieve. Mason and Wetherbee suggested that relatively little systematic (LDP) evaluation research had been conducted, and Russon and Reinelt

(2004) added that this is especially the case with regard to long-term, organizational impacts of leadership development interventions. Rogers (2007) has asserted that many evaluation efforts continue to use program theory simplistically, and encouraged researchers to consider theory-based evaluation concerns raised by Weiss (1997a) a decade earlier. Bickman (1987), Chen and Rossi (1983) and Kolb (1991) have suggested that many program evaluations (though not necessarily leadership-related) examine the relationship between program inputs and outcomes without adequate consideration of what actually occurs during the program (i.e. implementation and delivery). Grayson (1992, p. 1) summarized the problem as follows:

> Many evaluation designs used to assess the impact of educational programs and practices may be characterized as "black box" evaluations. The term black box describes evaluations that emphasize measurement of inputs and outcomes and generally disregard both description of program processes and analysis of program content. Such impact evaluation designs overlook the diversity and complexity of underlying program theories.

The Problem in Sum

Because many leadership theories are not contextualized (e.g. Zaccaro & Horn, 2003), their underlying constructs are often inadequately explicated (e.g. Hunter, et al., 2007), and/or LDP evaluations often lead to inconclusive or insignificant results (e.g. Collins & Holton, 2004), leadership development practitioners often mistrust or undervalue basic leadership research. On the other hand, many leadership development practitioners haphazardly develop and implement programs (e.g. Sobeck & Agius, 2007), and many LDPs operate without an explicit program theory altogether (Russon & Reinelt, 2004). This theory-practice disconnect has led to a relative dearth of scholarly LDP evaluation (Mason & Wetherbee, 2004) and a

resultant need for more theory-based evaluation in leadership research (Russon & Reinelt, 2004).

The Empire State Food and Agricultural Leadership Institute (or "LEAD New York", as it is commonly referred to) serves as a case for this study, and may be guilty of many of the preceding accusations. Although LEAD New York (LEADNY) has been in existence since 1985 (LEAD New York, n.d.), and is highly regarded among alumni and other stakeholders, it can be argued that the curriculum has evolved more through a process of trial and error, as opposed to being the result of an explicit program theory or detailed conceptualization of leadership development constructs. LEADNY needs to do a better job of explicating the theoretical constructs on which it is based, describing how those constructs are operationalized in the curriculum, and identifying the expected outcomes of the treatment (i.e. program).

Purpose and Significance of the Study

Purposes of this study will be to a) identify underlying theoretical constructs of the program and b) develop a theory-based framework that may be used for both immediate program implementation (i.e. improvement) and future (proposed) theory-based evaluation of the program.

This study follows a long tradition of work on nomological networks (e.g. Cronbach & Meehl, 1955) and pattern-matching approaches to construct development (e.g. Campbell & Fiske, 1959; Trochim, 1985). *Concept mapping* (CM; the primary research method employed in this study) provides an attractive method for practitioners to become more involved in the generation of the conceptual framework of leadership development because it "expresses the conceptual framework in the language of the participants rather than in terms of …the language of social science theorizing" (Trochim, 1989a, pp. 15-16). Because many leadership theories are not contextualized (Zaccaro & Horn, 2003) and CM is ideally suited to help researchers

explicate and test theories in context through a pattern matching approach (Trochim, 1989c), this method may help bridge the divide between the theoretical realm and the observational realm (and by extension, the practice domain).

This work will be of fundamental importance to progress in the field of leadership development, as it will help us understand how LDPs work and how they seek to achieve their intended outcomes. This study will be significant in several ways. First, it serves as one attempt to address a well-documented (e.g. Day, 2000, Zacarro & Horn, 2003) theory-practice gap in leadership development studies. As Russon and Reinelt (2004) pointed out, few LDPs operate with an explicit program theory in place, and this study – a conceptualization exercise - will facilitate the identification of underlying theoretical constructs and development of a theoretical framework for the case in question. Second, while other scholars have used CM to generate program theory, this is the first time the method has been used in the context of LDPs. No other LDP research project could be located in the literature that used concept mapping methodology to identify and rank expected program outcomes and constructs. Third, this study serves as a *process evaluation*[1] of the LEADNY program, and will be of immediate utility to the program staff and management for planning purposes (Kane & Trochim, 2007; Trochim, 1989a), as it will help to prioritize items (i.e. outcomes) that are both important and feasible (see the description of "go-zone" plots in the discussion chapter). Fourth, this study lays the groundwork for future, theory-based *outcome evaluation* of the program. Finally, this study builds upon previous theoretical work in the field of leadership development and makes unique contributions to that theory base (see the results of analysis and discussion chapters for these contributions).

[1] In their Basic Project Life Cycle Model (p. 158), Kane and Trochim (2007) distinguished between *process evaluation* (i.e. monitoring of program implementation) and *outcome evaluation* (i.e. assessment of outcomes).

Research Questions

This study will address several substantive, methodological, and programmatic research questions, as follows:

Substantive questions. What are the expected outcomes (as perceived by program alumni) of participation in the LEADNY program? Can the constructs identified in this concept mapping project be used to develop a theoretical framework for the program (Kane & Trochim, 2007; Trochim, 1989c)?

Methodological questions. How well does Trochim's (1989a, 1989b, 1989c) structured conceptualization method, concept mapping, function as a theory development tool (as applied in the context of the LEADNY program)? What strengths and weaknesses might be identified in the use of this method for theory development?

Programmatic questions. How might participant ratings of outcome importance and feasibility inform program development and implementation (Kane & Trochim, 2007)? Can the constructs that are identified (and subsequent theoretical framework) be utilized to guide future (proposed) program evaluation efforts (Kane & Trochim, 2007; Trochim, 1985, 1989a, 1989c)?

Answers to each of these questions will be addressed in detail in the discussion chapter.

Definitions of Terms

Leadership. In a comprehensive review, Bennis and Nanus (1985, as cited in Bass, 1990) identified over 350 definitions of leadership. Stodgill (1974, p. 259 as cited in Bass, 1990) once noted that "as many definitions of leadership exist as there are people that have tried to define it" and Yukl (2002, p. 2) added "…that stream of new definitions has continued unabated since Stodgill made the observation".

The preceding references make the point that defining leadership in a way that would satisfy all leadership scholars would certainly be a difficult. That said, most definitions of leadership do have several common features. First, many definitions (e.g. Daft, 2005; Gardner, 1990; Maxwell, 1993; Parry, 1998; Yukl, 1999) feature the term "influence" (or a similar terms, like "persuasion" or "motivation"), suggesting that leadership is an *influence process*. Second, many contemporary theories of leadership (e.g. Balkundi & Kilduff, 2006; Graen & Uhl-Bien, 1998; Parry, 1998; Uhl-Bien, 2006) point to the *social nature* of the role. Finally, it has been argued (e.g. Daft, 2005; Kouzes & Posner, 2002; Maxwell, 1993) that the purpose of leadership is to bring about *change* (or transformation) in the broadest sense of the term (e.g. Bass, 1990; Daft, 2005; Parry, 1998; Yukl, 2002).

Putting these three common features (i.e. influence process, social nature, and change) together as Parry (1998) does, this study employs the following parsimonious definition: *leadership is a social influence process for change.*

Leadership Development Program (LDP). LDPs may be delivered in a number of different formats (Conger, 1992; Muijs et al., 2006) depending on the context or setting in which the program is offered, and the line between leadership development and capacity building or managerial training is often blurred. For example, in-house training at a corporation (e.g. Sirianni & Frey, 2001) may be intended to improve both managerial *and* leadership capacities of staff members, while a community LDP - sometimes referred to as a "capacity building" initiative (e.g. Sobeck & Agius, 2007) - may be intended to enhance social capital within the community and motivate community residents to serve in local leadership roles (e.g. Wituk, Warren, Heiny, Clark, Power, & Meissen, 2003). Day (2000) not only made a distinction between management development and leadership development, but he also differentiated between *leader development* (i.e. improvement of individual leader capacity, or human

capital) and *leadership development* (i.e. improvement of team, group, or organizational leadership capacity, or social capital). However, Day also acknowledged that the term "leadership development" is often used to describe interventions that may be designed to improve either individual leader capacity or group leadership capacity, or both. Taking an individualistic approach, Avolio, Reichard, Hannah, Walumba and Chan (2009) defined leadership training or development as "an attempt…to enhance an individual's knowledge, skills, ability, motivation, and/or perceived self-concept to enable them to exercise positive influence in the domain of leadership" (p. 769). Taking a more collective approach, Day suggested that leadership development is "expanding the collective capacity of organizational members to engage effectively in leadership roles and processes" and that it involves "building the capacity for groups of people to learn their way out of problems that could not have been predicted" (p. 582). It should be noted that leadership interventions aimed at serving youth populations (e.g. 4-H, Boys Scouts, FFA, and Girl Scouts) are not considered here. For the purposes of this study, then, LDPs are defined as formal educational interventions, targeting adult populations, that are intended to improve the leadership capacity of individuals or groups.

Outcomes. The W. K. Kellogg Foundation (2002) differentiated between program outputs, outcomes and impacts as follows: *Outputs* are generally short-term (i.e. zero to three years) results of an intervention, and are usually attributed to the individual participant, though they may also apply to dyad, group or organizational levels of analysis. *Outcomes* are generally thought of as intermediate-term (i.e. three to five years) results of an intervention, and may be individual, dyad, group or organizational in nature (Grove, Kibel, & Haas, 2005). *Impacts* are usually thought of as long-term (i.e. five years or more), sustainable results of an intervention, and may be individual in nature, but more often than not are considered to be team,

organizational, industry-wide or even societal level results (Grove, et al., 2005) that are realized or sustained many years after the intervention. In the present study, and for the sake of simplicity, the term "outcomes" will be used (unless otherwise noted) and may be understood to encompass outputs and impacts.

Constructs. "The field of leadership typically employs constructs – variables that cannot be directly measured – in its research" (Schriesheim & Cogliser, in press). Billsberry (2009) has also argued that rather than thinking of leadership as something knowable and definite (as many previous approaches to leadership research have done), scholars should instead think of leadership as a complicated set of contested constructs. Cronbach and Meehl (1955, p. 187) referred to "the interlocking system of laws which constitute a theory as the *nomological network*" and asserted that "the laws in a nomological network may relate…theoretical constructs to observables; or different theoretical constructs to one another." Cronbach and Meehl defined a construct as "some postulated attribute of people" (p. 178) and went on to suggest that "…'learning more about' a theoretical construct is a matter of elaborating the nomological network in which it occurs, or of increasing the definiteness of the components" (p. 187). (That is a primary purpose of this study; to elaborate on the underlying network of concepts present in the LEADNY program through a CM methodology.) Finally, Cronbach and Meehl concluded that "A construct is defined implicitly by a network of associations or propositions in which it occurs. Constructs employed at different stages of research vary in definiteness." (p. 200)

A construct may therefore be thought of as an inductive summary (Cronbach & Meehl, 1955), reasoned from a particular set of facts (i.e. program outcomes) to a general conclusion or conceptualization of broad categories of program outcomes. Or, perhaps better suited to this study, a construct is defined as "a concept, model or

schematic idea" (Shadish, Cook, & Campbell, 2002, p. 506). The clusters in the concept maps produced in this study are graphical representations of the constructs.

Program theory. With the increase in popularity of theory-based evaluation (TBE) has come a proliferation of terminology (and confusion) related to the method. For example, Weiss (1997b) used the terms *program theory* and *logic models* to refer to essentially similar concepts. Russon and Reinelt (2004) equated *program theories* with *theories of change*, though Weiss (1997a) distinguished between the two. And although Kolb (1991) distinguished between *theory-driven* and *theory-focu*sed evaluations, others have used these (and other) terms without consistently distinct definitions (Rogers, 2007).

Chen (1990) suggested that "program theory is…a specification of what must be done to achieve desired goals, what other important impacts may also be anticipated, and how these goals and impacts are to be generated" (pp. 9-10). Weiss (1997a, 1997b) distinguished between *implementation theories* (i.e. those that specify activities and some immediate outcomes) and *program theories* (i.e. those that examine causal mechanisms involved in programs), and went on to suggest that when combined, these two types of theory constituted a *theory of change* for the program in question. (For the sake of simplicity, however, Weiss used the term *program theory* to encompass all three.) Furthermore, Weiss (1997a, p. 502) suggested that "If *theory* is taken to mean a set of highly general, logically interrelated propositions that claim to explain a phenomenon of interest", then a *program theory* (or model) is more specific and directed at only that part of the causal chain of explanation that the program in question is trying to alter. Finally, Bickman (1987) described program theory as "a plausible and sensible model of how a program is supposed to work" (p. 5), and that is the parsimonious definition adopted in this study.

Context: The LEAD New York Program

Historical background. The Empire State Food and Agricultural Leadership Institute (the official program name), or "LEAD New York" (LEADNY) as it is more commonly known, is a LDP for adult professionals in the food and agricultural industry in New York State, modeled after similar programs piloted in four other states during the early 1980s by the W. K. Kellogg Foundation (Helstowski, 2000), and served as a case for this study. Several agricultural organizations in New York State (e.g. College of Agriculture and Life Sciences at Cornell, NYS Department of Agriculture and Markets, NYS Agricultural Society, NYS Farm Bureau) were involved in the planning, marketing, recruitment, and implementation of the first cohort (or "class" as they are commonly referred to) in 1985, and remain involved to this day. Since 1985, 12 cohorts and 344 individuals have successfully completed the program.

LEADNY is but one of nearly 40 similar programs located throughout the United States and in several other countries (International Association of Programs for Agricultural Leaders, n.d.). According to a retrospective study conducted for the W.K. Kellogg Foundation (Helstowski, 2000), over 111 million dollars of financial support had been garnered (to that point in time) for 28 U.S. programs in the preceding 35 years, and over 7,200 program participants (i.e. alumni) had been exposed to approximately 18 – 24 months of training. In any given year, nearly one thousand adults are devoting much of their time to participation in these programs, hundreds of speakers share their expertise, and millions of dollars are spent conducting these programs.

There have been five executive directors of the LEADNY Program. It should be noted that the researcher is both a graduate (class six, 1995 - 1997) and current executive director of the program. This fact affords the researcher an intimate

knowledge of the program, both from a participant's and a program administrator's perspective. This first-hand knowledge of program history and operations is valuable because little data has been published regarding the program in its 25-year history.

LEADNY participants. Twenty-five to thirty adults are selected for each class through a competitive application process, by a selection committee of the program board of directors. Minimum age is 25 years, and there is no maximum age at present, though there has been in the past. Historically, the program did not track ages of participants, so no overall age statistic can be calculated. However, during recent cohorts, average age of participants has been around 38 years. There is no minimum education requirement, and again, the program has not historically tracked education status, so a summary statistic cannot be calculated. However, most participants hold undergraduate college degrees, many have completed a master's degree, and relatively few have earned a doctoral degree or, at the other extreme, only a high school diploma. In the total alumni population (N = 344), 245 (71 percent) are male, and 99 (29 percent) are female. Participants are also typically geographically dispersed throughout New York State, and a few participants have been selected from neighboring states (e.g. MA, PA, VT). In any given cohort, approximately one third of class members come from the production agricultural sector (i.e. farmers), one third come from the for-profit agribusiness sector, and one third come from government agency, education, or not-for-profit sectors (referred to as the "other" employment category). Believing that diversity – including such intrapersonal functional background diversity - is positively related to team (i.e. cohort) performance (Bunderson & Sutcliffe, 2002; Pelled, Eisenhardt, & Xin, 1999), the selection committee tries to assemble a final class roster that is diverse in gender, age, geographic location, and in professional/industry affiliation (LEAD New York, n.d.).

Brief program overview. Participants meet monthly from October through April in each of the two years of the program. Most sessions are three days in length, with some that involve more travel requiring four to five days. A study trip in the second year of the program is eight to ten days long. The total program is approximately 50 days in length. Sessions typically are a mixture of lectures by outside speakers, discussions, tours, small group activities and class member presentations. Outside work (e.g. reading, preparation for presentations, team assignments) is also expected. Often, training received in one session is built upon in subsequent sessions. For example, public speaking training may be offered one month, and in the following month class members give a presentation and are critiqued by the trainer and their peers. In addition to organized instructional activities, participants share lodging accommodations, dine, and travel together. Though unstructured, this informal time is also viewed as a valuable component of the overall LEADNY experience, as it is during this time that many strong relationship bonds are developed.

Stated program objectives. "The mission of LEAD New York is to inspire and develop leaders for the food and agricultural industry" (LEAD New York, n.d.). Little published data exists, so the following program objectives were gleaned from historical documents of the Program Board of Directors (the board), marketing materials (e.g. program brochures), personal experience of the researcher/executive director, and the program website (LEAD New York, n.d.). A more thorough analysis of stated program objectives, as compared to outcomes identified by this study, will take place in the discussion chapter. For introductory purposes, program objectives have generally fallen into one of four broad categories:

1. Improve participants' *leadership skills* (e.g. communication skills)

2. Improve participants' *knowledge/awareness of the political process*, and foster a sense of *civic engagement*

3. Broaden participants' *knowledge/awareness of issues* relevant and contemporary to the food and agricultural industry

4. Improve participants' *networking/relationship skills*, and develop a broad, strong network of leaders for the food and agricultural industry

Limitations of the Study

This study constitutes a theory development and process evaluation not designed either for assessing causal hypotheses or generalizing to large domains of programs. Subsequent research of that type might build on the foundations of this work (i.e. the theoretical framework this study provides).

Readers should also be aware that this study is based on data collected predominantly from LEADNY program alumni (and to a lesser extent the board of directors), and did not include data collected from other stakeholder groups (e.g. employers, co-workers, spouses). As such, results of this study may not fully capture the outcomes and constructs that might be identified by these groups. It is recommended that future research not only identifies outcomes and constructs as perceived by these groups, but that it also compare those with results of the present study.

CHAPTER 2

LITERATURE REVIEW

> Theory and practice are interconnected domains that underlie the current movement toward increased use of program theory in evaluation. Fittingly, the essence of theory and practice – the synergy of reflection upon action – basically defines experiential education, the program area of interest in this study. This fundamental similarity, along with developments and needs within both fields of program evaluation and experiential education, indicate that applying theory-focused evaluation approaches within the field of experiential education is a reasonable, if not essential course of action. (Kolb, 1991, p. 10)

One could substitute the words "leadership development" for the words "experiential education" in Kolb's (1991) quote above, and have an accurate statement about the need for new directions in leadership development research, the primary area of interest in this study. Similar calls for theory-based evaluation in the field of leadership development have been offered during the past two decades (e.g. Billsberry, 2009; Parry, 1998; Rogers, 2007; Weiss, 1997a).

This chapter presents a review of the leadership literature, organized into four parts: a) review of the predominant theoretical orientations of the last half-century, b) summary of recent LDP evaluation efforts, c) the theory-practice gap, and d) construct identification and conceptualization of program theory as a step towards theory-based evaluation of leadership development.

Predominant Theoretical Orientations

Though philosophers of the classical era like Plato and Aristotle discussed different types of leaders in society, the word "leader" first appeared in the English language around the year 1300 (Bass, 1981), and although the concept of leaders can be traced back to ancient Egypt, the study of leadership as a discipline is a post-industrial revolution phenomenon (Bass, 1990). It was not until the mid-twentieth century that the field of leadership studies really blossomed, and appeared to be at a zenith around the turn of the century (Day, 2000). Though some reference will be

made to earlier works, this section will therefore focus on theoretical orientations towards leadership that have dominated the last half-century.

The proliferation of published works related to leadership during the past 50 years can be overwhelming, and it is not the intent of this section to serve as a comprehensive and exhaustive review of leadership theory [see Bass (1990), Daft (2005) and Yukl (2002) for reviews]. However, in order to appreciate methodological traditions used in LDP evaluation (reviewed in the following section), one must first have a basic understanding of predominant theoretical orientations (i.e. leadership paradigms) of the past 50 years.

Difficulties in organizing theories coherently. The study of leadership does not fit into neat boxes, or as Burns (1978) suggested, leadership may be one of the most observed and least understood phenomenon on earth. Gardner (1990, p. 22) added: "Any attempt to describe a social process as complex as leadership inevitably makes it seem more orderly than it is." And in 1959, Warren Bennis opined:

> Of all the hazy and confounding areas of social psychology, leadership theory undoubtedly contends for top nomination. And, ironically, probably more has been written and less known about leadership than any other topic in the behavioral sciences. Always, it seems, the concept of leadership eludes us or turns up in another form to taunt us again with its slipperiness and complexity. (as cited in Bass, 1990)

Countless leadership scholars (e.g. Bass, 1990; Daft, 2005; Yukl, 2002) have acknowledged that few among them can agree upon a common definition of leadership, and organizing leadership theories coherently is just as difficult, for several reasons. First, the same terms are sometimes used to refer to different theoretical traditions, and different terms are sometimes used to describe what are essentially the same theories. For example, Yukl (2002) placed path-goal theory under "behavioral

approaches", but Lowe & Gardner (2001) placed path-goal theory under "contingency approaches". Boal and Hooijberg (2001) discussed "behavioral complexity" as an "*emergent* leadership theory" (emphasis added), but as discussed in this chapter, behavioral theories have been in existence for over 50 years and are generally considered to be "early theories" by most researchers.

Second, some leadership theories had a relatively distinct lifespan in the academic literature, only to survive in the popular press on leadership. For example, *behavioral approaches* to leadership largely lost favor in peer-reviewed journals by the turn of the century (Lowe & Gardner, 2001), but they remain (under different names) widely used in the popular press on leadership. Examples include the *practices* of exemplary leaders suggested by Kouzes and Posner (1987), the *habits* of effective people offered by Covey (1989) and the *skills* of natural leaders described by Blank (2001). Whether called practices, habits, or skills, each of these approaches could be considered a behavioral approach to leadership, and they remain popular with a public that yearns for an easy, "cookbook" approach to leadership.

Third, leadership theories often emerge in a variety of fields of study (e.g. management, organizational behavior, education, health care) (Kellerman, 1984). Each field may have its own preferred terminology, and may use terms other than "leadership" entirely (e.g. Path-Goal Theory). As another example, *The 7 Habits of Highly Effective People* (Covey, 1989) did not overtly claim to be a leadership text per se, but it has been widely used in leadership development programs as a model for individual leadership.

Fourth, it has been said that the test of a good theory is that it holds until you find a better one – and leadership scholars appear to be eager to find that "better one". But some new leadership theories often constitute nothing more than minor modifications of earlier theories, and delineation between these closely related theories

is often blurred. For example, what began as Leader-Member Exchange (LMX) Theory (Graen & Uhl-Bien, 1998) resulted in the development of Relational Leadership Theory (RLT) a short time later (Uhl-Bien, 2006). The former also falls into the larger category of *transactional* leadership theories, a group of theories that basically views leadership as a set of transactions between leaders and followers (e.g. the leader promising pay increases to subordinates for improvements in job performance).

Finally, even leading scholars in the field of leadership studies often do not agree on the classification of specific leadership theories. For example, while Daft (2005), Lowe and Gardner (2001) and Yukl (2002) treated contingency and situational theories as very similar theories but distinct from personal (i.e. trait) theories of leadership, Bass (1990) treated situational theories as distinct from contingency theories, the former categorized under "personal and situational theories" and the latter categorized under "interaction and social learning theories". Despite the difficulties of organizing leadership theories coherently, some notable attempts have been made. In general, while Bass' (1990) categorization of leadership theories may be more detailed, it may also be more confusing than those used by other leading authors (e.g. Daft, 2005; Lowe & Gardner, 2001; Yukl, 2002).

The preceding discussion serves the function of disclaimer for the admittedly oversimplified summary of leadership theories that follows. Much of this summary is based on Lowe and Gardner's (2001) review of articles published in the *Leadership Quarterly (LQ)* from 1990 to 2000, and incorporates the taxonomies provided by Bass (1990), Daft (2005), Yukl (2002) and others. Additional (i.e. emergent) theories that have been published during the past decade, as well as theories offered in journals other than the *LQ*, are incorporated into this summary. It is useful to organize these theories according to the approximate era in which they were prevalent. Though there

is no definitive bracket for the dates in which these theories predominated, based on the years in which they were most prevalent in the literature, the following time frames are offered (with some overlap): *early* theories – 1920 to 1990, *more recent* (or *newer*) theories – 1980 to 2000, and *emergent* (or *current*) theories – 1995 to present.

Early Leadership Theories

The early theories generally included *trait* theories, *behavioral* approaches, and *contingency* theories of leadership (Lowe & Gardner, 2001), or *personal* and *situational* theories (Bass, 1990). As a group, it can be said that most of the theories in these categories considered the individual actor – that is, the leader - as the unit of analysis (Uhl-Bien, 2006). Though most of these theories have been replaced by more contemporary theories of leadership, they are still widely used (if not explicitly, then implicitly) in the practice of leadership development and appear in many "self-help" books in the popular press (e.g. *The 108 Skills of Natural Born Leaders*, Blank, 2001; *Learning to Lead*, Conger, 1992).

Trait theories. Trait theories, including "great man" theories of leadership, generally concerned themselves with the personal attributes (e.g. physical appearance, energy, ambition) of individual leaders. The logic of trait theories went something like this: If we study effective leaders (see "Great Man" theory of leadership, Bass, 1990; Daft, 2005), we should be able to identify and measure certain traits (e.g. energy, intelligence, appearance) possessed by those leaders (Bass, 1990 pp. 80-81; Kirkpatrick & Locke, 1991). Assuming we can identify specific traits possessed by a number of effective leaders, we should be able to develop a list of traits, the majority of which are possessed by the majority of leaders. It follows that if we can measure the degree to which an individual possesses these traits, we should be able to predict that individual's leadership potential. Research generally found only weak relationships between personal traits and leader success, thus possessing certain characteristics was

no guarantee of leadership ability (Daft, 2005). Furthermore, the diversity of traits possessed by effective leaders suggests that leadership is not a genetic endowment (refuting "Great Man" theory), and the importance of a trait was often relative to the situation (see contingency theories).

It cannot be denied that many leaders have certain traits in common (e.g. a pleasing voice or gregarious personality), but the scholarly community has recognized that leadership is far too complex a phenomenon to be explained by a simple list of traits (Bass, 1990; Kirkpatrick & Locke, 1991). As a notable exception, Antonakis, Cianciolo, and Sternberg (2004) suggested that the preceding decade had seen a resurgence of interest in trait theories.

Behavioral approaches. After becoming discouraged with trait approaches, many researchers began focusing attention on what managers actually *do* on the job, or how leaders *behave* (Yukl, 2002). Examples include autocratic vs. democratic behaviors, consideration vs. initiating structure, or person vs. task centered behaviors (Daft, 2005). Behavioral researchers attempted to identify specific leadership behaviors utilized by effective leaders. While certain behaviors (e.g. active listening) can be measured and may be used by many leaders, it does not follow that *all* leaders are good listeners, nor does it follow that *all* good listeners are good leaders. Thus the problem faced by the behavioral theorists was similar to that of the trait theorists: the difficulty of developing a comprehensive list of behaviors utilized by all (or even most) leaders in all circumstances. A behavior that worked well for one leader in one setting (e.g. a democratic leadership style on a creative team) may not be the best leadership behavior for another leader in a different setting (e.g. a military commander on the battlefield). While researchers are still studying leader behaviors, most of the early behavioral approaches have given way to more complex theories that include moderating variables on leader behaviors (see contingency theories, below).

Contingency theories. Perhaps the best way to summarize contingency theories (or *personal and situational theories*; Bass, 1990) of leadership is to say that they considered the *context* of the leadership situation (Osborn, Hunt & Jauch, 2002; Yukl, 2002). An individual leader may behave in a certain way in one setting (e.g. have a participative style on a management team) but behave very differently in another (e.g. have a very dictatorial style with direct reports). Both behavioral styles may be effective and appropriate for a given setting, but not in others. Thus, in contingency theories, behaviors are utilized depending on the context of the situation (Bass, 1990). Some leaders (with strongly held behavioral styles) are better suited to certain situations than are others (Daft, 2005), so understanding contingency approaches may have prescriptive benefits for organizations (i.e. assigning certain leaders to roles they are well suited for). Like classical trait and behavioral theories, the appeal of contingency theories appears to be waning (Lowe & Gardner, 2001).

Summary of the early theories. The primary theoretical paradigm of early theorists was that *leadership was an attribute of the individual*, and their ambition was to discover those common attributes of recognized leaders. Accordingly, research traditions used the individual as the unit of analysis. Relationships between actors (e.g. leaders and followers), if they were considered at all, were usually viewed as intervening variables or as having moderating effects. Gradually, the field recognized that leaders do not operate in a vacuum - they must interact with others – so the theoretical paradigms adjusted to consider the social aspects of leadership, discussed in the following section.

More Recent Leadership Theories

More recent theories included *multiple level approaches* (e.g. LMX Theory, Graen & Uhl-Bien, 1998), *leadership and information processing theory*, and *neo-charismatic leadership paradigms* (Lowe & Gardner, 2001). Neo-charismatic

leadership included revised charismatic and early transformational and attributional leadership theories (Lowe & Gardner). Bass (1990) called some of these *hybrid explanations* of leadership. A notable difference between the early leadership theories and the more recent theories is that the former generally considered the individual actor as the unit of analysis, and the latter considered *relationships between actors* to be a primary unit of analysis (Uhl-Bien, 2006). Thus the epistemological assumption of this era was that *leadership is a social phenomenon* that accumulates or collects around groups of actors (Balkundi & Kilduff, 2006), and the new epistemological ambition was to understand these relationships.

Multiple-level approaches. Some more recent theories considered leadership at multiple levels: the *dyad* (between the leader and follower, or "member" or "actor" as the more politically correct terms), the *group* or *team* level, and the *organizational* or *community* level. Some of these theories (e.g. LMX theory) viewed the relationship between leader and follower as a *transactional* one; as when a leader influences a follower by promising them a promotion in return for a performance improvement (Bass, 1990; Graen & Uhl-Bien, 1998). Leadership was also viewed as personalized; in other words, a given leader may interact with different individuals differently, depending on the perceived effectiveness of certain behaviors (Bass, 1990). Systems and networking theory also began to make their way into leadership theory here, with leadership researchers recognizing the many, varied relationships between individual leaders and their diverse network of contacts above, below and horizontal to them in the organization (Balkundi & Kilduff, 2006; Grayson & Baldwin, 2007; Livi, Kenny, Albright & Pierro, 2008).

Leadership and information processing. Leadership research also began to examine the way in which leaders processed information. These information processing or *cognitive* theories did not necessarily "fit" the categories of multiple-

level or neo-charismatic paradigms (Lowe & Gardner, 2001), and so stand alone in this organization of theories. Brown, Scott, and Lewis (2004) and Lord and Emrich (2001) suggested that it was not only important to know what is going on inside the mind of the leader, but also what thought processes are occurring in the minds of subordinates as well. Brown, et al. suggested that for leaders, contextually organized schemata are the sources for one's own behaviors, whereas for subordinates, schemata provide the measures against which their leaders are compared (i.e. they form the basis for subordinates' implicit leadership theories).

Neo-charismatic paradigms. Lowe & Gardner (2001) suggested that there was a difference between the first charismatic and transformational leadership theories, and later evolutions of similar theories – hence the term "neo-charismatic" theories. Many of the more recent leadership theories began to look at leadership more broadly – instead of examining specific traits or behaviors in fairly specific contexts, newer theories began to look at leaders as a whole. What *kind* of leader were they? What did leaders *do* (beyond specific behaviors in context) in organizations (e.g. provide vision and direction, transform organizational culture, change follower behavior)? Charismatic leaders were thought to provide the *vision* for their respective organizations (Daft, 2005). *Transformational* leadership began to supplant transactional leadership, suggesting that transformational leaders persuaded their followers to transcend their own interests for the good of the team, group or organization, in effect, turning followers into leaders themselves (Bass, 1990; Daft, 2005). Researchers also examined the implicit attributions of leaders. For example, did a leader's belief in their own ability to lead (i.e. confidence) have an effect on their performance? Did follower expectations (i.e. implicit leadership theories) affect their ratings of, and subsequent interactions with, their leaders? Did organizational context influence leader behavior more than the leader influenced the organization?

Summary of more recent theories. The theoretical paradigms represented by the preceding questions suggest that more recent leadership theories were richer, more complex and examined leadership on a different level than theories from the early era. Moving away from examining specific leadership traits, behaviors or contexts, the newer theories began to study leaders as a whole; how they behaved in a variety of contexts, settings and levels; and even moved beyond study of a given leader to the examination of the *dynamic* relationships between leaders, others and organizations (Graen & Uhl-Bien, 1998; Kouzes & Posner, 2002).

Emergent Leadership Theories

The *emergent* leadership theories discussed below did not even exist at the time of publication of Bass' (1990) *Handbook of Leadership.* Different authors have used various terms, but in general these emergent paradigms included: *transformational, charismatic* (behavioral and self-concept based), *servant, spiritual, authentic, ethical, political,* and *strategic* leadership theories. Avolio and Gardner (2005) offered an excellent summary of several of these emergent theories, as compared to *authentic leadership,* which they suggested was a foundational theory on which other emergent theories might be based. Avolio and Gardner's work also serves as one attempt to identify the constructs underlying various leadership theories. Table 2.1 compares the components (i.e. constructs) of authentic leadership theory with several other emergent theories (Avolio & Gardner, 2005). As Table 2.1 suggests, many constructs (e.g. leader self-awareness) are common to several emergent leadership theories. In the paragraphs that follow, brief summaries of these and other emergent theories are provided.

Table 2.1 Comparison of authentic leadership development theory with transformational, charismatic, servant, and spiritual leadership theories (from Avolio & Gardner, 2005)

Components of authentic leadership development theory	TL	CL(B)	CL(SC)	SVT	SP
Positive psychological capital	*	*	*		*
Positive moral perspective	X	X	X	X	X
Leader self-awareness					
Values	X	X	X	X	X
Cognitions	X	X	X	X	X
Emotions	X	X	X	X	X
Leader self-regulation					
Internalized	X		X		X
Balanced processing	X				
Relational transparency	X				
Authentic behavior	*	*	*	X	
Leadership processes/behaviors					
Positive modeling	X	X	X	X	*
Personal and social identification	X	X	X	*	*
Emotional contagion					
Supporting self determination	X	X	*	X	X
Positive social exchanges	X	*	*	*	*
Follower self-awareness					
Values	X		X	X	X
Cognitions	X		X		X
Emotions	X		X		X
Follower self-regulation					
Internalized	X	X	X	*	X
Balanced processing	X				
Relational transparency	*		*		
Authentic behavior	*		*		*
Follower development				X	X
Organizational context					
Uncertainty	X	X	X		
Inclusion	X				X
Ethical	X				
Positive, strengths-based				*	
Performance					
Veritable					
Sustained	X	X			
Beyond expectations	X	X			X

Note. From "Authentic leadership development: Getting to the root of positive forms of leadership," by B. J. Avolio and W. L. Gardner, 2005, *Leadership Quarterly, 16*, p. 323. Copyright 2005 by Elsevier Inc.

Note: X = Focal Component, * = Discussed.

Key: TL—Transformational Leadership Theory.

CL(B)—Behavioral Theory of Charismatic Leadership.

CL(SC)—Self-Concept Based Theory of Charismatic Leadership.

SVT—Servant Leadership Theory.

SP—Spiritual Leadership Theory.

Authentic leadership. Authentic leadership theory emerged from transformational leadership theory, and several authors even used the term "authentic" as an adjective preceding "transformational leadership" (e.g. Price, 2003). A colloquial expression that sums up authentic leadership theory well is "to thine own self be true" – suggesting the importance of morals, ethics, and values in a leader's behavior. Bennis (2004) suggested that "crucibles" (i.e. profound life experiences) determine what type of leader a person may eventually become. For example, the Civil War was a crucible that "forged" Abraham Lincoln into the leader that he was; as German aggression in Western Europe did to Winston Churchill and the Civil Rights Movement did to Martin Luther King. Like other emergent themes, authentic leadership focused on (authentic) relationships, which included positive psychological capital, underlying relational processes, and consideration of context in the leadership situation (Avolio & Gardner, 2005). Several other authors addressed the concept of authentic leadership, including Gardner, Avolio, and Walumba (2005), and Price (1993, 2003). For a thorough discussion of authentic leadership, see the special issue of *Leadership Quarterly* (Volume 16, Number 3, June 2005) devoted to the topic.

Servant leadership. Also called "self-sacrificial leadership", servant leaders put others' needs or interests above his or her own (Daft, 2005). Moral perspective, self-awareness, values, authentic behavior, and positive role modeling are all important components of this theoretical paradigm. Liden, Wayne, Zhao, and Henderson (2008) developed a measurement instrument to assess servant leader behavior; see their discussion as well.

Ethical leadership. The concept of *ethics* - or *morals*, as the two terms are used interchangeably by many philosophers (Ciulla, 2004) - is so intertwined with many of the newer and emergent theories of leadership (e.g. Price, 2003), that it may be difficult to distinguish ethical leadership as its own distinct paradigm. Kouzes and

Posner (1987) previously identified credibility as essential to leader effectiveness, and values as being at the heart of ethical leadership behavior, and Gardner (1990) elaborated on "The Moral Dimension of Leadership". As these two examples illustrate, ethics and morals had been discussed in the leadership literature well before the emergent theories era. However, corporate scandals in the new millennium (e.g. Enron) brought ethics (or more appropriately, the lack thereof) and leadership into the forefront of discussions about leadership. Brown, Trevino, and Harrison (2005) found ethical leadership to be related to several other factors (e.g. subordinate's trust in the leader) and also a predictor of certain outcomes (e.g. follower's job satisfaction and dedication); hence ethics were viewed by some as essential to leadership effectiveness (Ciulla) in today's "transparent" organizations.

Political leadership. Political leadership has been scrutinized since Plato wrote *The Republic*, yet it is presented here as an emergent theory due to the relatively recent popularity of studying political leaders and studying leadership in political contexts [see the *Leadership Quarterly* special issue (1998, Volume 9, Number 3) on political leadership for a discussion of the paradigm and methodological approaches to studying it]. Epistemological positions here try to determine what motivates political leaders, or view political leaders as "warriors" (Lowe & Gardner, 2001).

Strategic leadership. "Strategic leadership" is a term used by Boal and Hooijberg (2001) to encompass several of the "new" leadership theories described above, including charismatic, transformational, and visionary leadership. Boal and Hooijberg suggested that strategic leadership is about leadership *of* organizations, whereas supervisory forms of leadership (e.g. path-goal, contingency, LMX theories) are about leadership *in* organizations. Such strategic leadership depends on a leader's *absorptive capacity* (i.e. ability to learn), *adaptive capacity* (i.e. ability to change) and *managerial wisdom* (including social/interpersonal intelligence and capacity to take

the right action at a critical moment) (Boal & Hooijberg). Hitt and Ireland (2002) suggested that a leader's ability to manage human and social capital (i.e. relationships) is the essence of strategic leadership. Yukl (2002) examined strategic leadership through the lens of executive leadership and change in organizations, implying that this is one of the functions of executive leaders: to provide strategic direction for the organizations they lead.

Summary of emergent leadership theories. Most emergent theories include *relationships*, *influence* and *change* (or semantic equivalents) in their definition of leadership, recognizing that it is a social process intended to bring about change or transformation (Uhl-Bien, 2006). Different emergent theories view the purpose of leadership as either a) to influence or change (i.e. transform) the organization or follower behavior, b) to providing strategy or vision for the organization, or c) to serve the greater good. Emergent theories have historical roots in philosophy, psychology and organizational behavior. In emergent theories, leadership is also viewed as a dynamic process; i.e. leaders not only influence followers and organizations, but organizational context and followers themselves also influence leaders. Boal and Hooijberg (2001) suggest these theories have greater emphasis on social intelligence and behavioral and cognitive complexity. Finally, emergent theories insist on multiple levels of analysis, including individual, dyad, group, and organization.

Metaphorically, if early theories considered the easily observed, external shell of a leader (i.e. traits, behaviors), and newer theories tried to decipher what goes on inside a leader's head (e.g. cognitive processes, contingency behaviors) (e.g. Lord & Emrich, 2001), then emergent theories seek to discover the contents of a leaders soul; exploring morals, values (e.g. Yukl, 1999), ethics, and even spiritual beliefs that influence the development of leaders.

Summary of Recent LDP Evaluation Efforts

The purpose of the following section is to provide a methodological overview of recent research and evaluation on LDPs. Attention is given to characteristic features of methodologies that have been used to investigate the effectiveness of leadership development interventions and programs. In one sub-section, the original research of 17 LDP evaluation studies is reviewed. In the following sub-section, three[2] reviews of LDP evaluation studies (Lowe & Gardner, 2001; Mason & Wetherbee, 2004; Russon & Reinelt, 2004; W.K. Kellogg Foundation, 2002) and two meta-analyses of LDP evaluations (Collins & Holton, 2004; Hattie, Marsh, Neill & Richards, 1997) are summarized.

Methods Used in this Review

The search process utilized was based on methods outlined by Cooper and Hedges (1994), Creswell (2003), and Galvan (2006). The search procedure included electronic retrieval of sources from a wide variety of databases (e.g. *Academic Search Premier*, *Cornell University Library Gateway*, *EBSCO, ERIC, Google Scholar*, *JSTOR, ProQuest, ScienceDirect, Social Science Research Network,* and *Wiley InterScience*), using several combinations of the following search terms: leadership theory, leadership development, program evaluation, and evaluation methods. The search scanned dozens of journals from diverse fields, including: administrative science, business, education, evaluation, human resources, leadership, management, organizational behavior, psychology, and social sciences. No temporal limits were imposed, but as expected, nearly all of the promising LDP evaluation articles discovered were published in the past twenty years. Additional searches of the archives of some of the more productive journals were also conducted, including:

[2] The paper by Russon & Reinelt (2004) serves as a peer-reviewed summary of the comprehensive W. K. Kellogg (2002) report. Together, they provide an excellent overview of LDP evaluation trends.

Journal of Leadership Education, Journal of Leadership and Organizational Studies, Leadership and Organizational Development, and *Leadership Quarterly.*

Contextual and critical filters were also applied. In an effort to provide adequate coverage, articles were selected from a wide variety of disciplines. To provide focus for this review, emphasis was placed on articles that were evaluation studies of specific LDPs. Both theoretical and empirical studies were reviewed, so long as methodological approaches to LDP evaluation were discussed.

Ensuring the quality of literature reviewed was not a simple matter of delineating between peer-reviewed and non-peer-reviewed sources. For example, though the *Journal of Extension* is peer-reviewed, two of the studies published there (Diem & Nikola, 2005; Horner, 1984) had inadequate explanations of their methods and theoretical foundations, suspect findings, and unfounded conclusions. In contrast, because they were written in a scholarly manner and were directly relevant to the purpose of this review, several non-peer-reviewed publications were considered, including: working papers (Kets de Vries, et al., 2008), reports (Dugan & Komives, 2007; Earnest, Ellsworth, Nieto, McCaslin & Lackman, 1995), and doctoral dissertations (Abington-Cooper, 2005; Black, 2006; Kho, 2001). Several reviews (Lowe & Gardner, 2001; Mason & Wetherbee, 2004; Russon & Reinelt, 2004; W.K. Kellogg Foundation, 2002) and two meta-analyses (Collins & Holton, 2004; Hattie, et al., 1997) of LDP evaluations are discussed as well. It is this corpus that serves as the basis for discussion of the historical traditions of LDP evaluation.

Methodological Features of LDP Evaluation Studies

The search of the literature conducted for this sub-section yielded 17 evaluation studies of specific leadership development efforts. These studies represent diverse disciplines, including: agriculture (Abington-Cooper, 2005; Black, 2006; Carter, & Rudd, 2002; Diem & Nikola, 2005; Kelsey and Wall, 2003; McLean &

Moss, 2003), community development (Earnest, et al., 1995; Wituk, Heiny, Clark, Power, &Meissen, 2003), extension education (Rohs, 2002), health care (O'Connor & Walker, 2003), higher education administration (Chibucos & Green, 1989, Muijs, et al., 2006), international business (Kets de Vries, et al., 2008; Kho, 2001; Sirianni & Frey, 2003) and student leadership (Dugan & Komives, 2007; Rohs, 1999).

In summarizing these evaluation studies, the organizational approach used by Lowe and Gardner (2001) is useful and adopted here. Lowe and Gardner report on *leadership paradigms*, *research settings*, *time horizons*, *methodological approaches*, *data collection methods*, *analytical methods,* and *levels of analysis* of articles published in *LQ* from 1990 to 2000. This review makes the following contributions: 1) it reviews work from a wider variety of disciplines and publications, 2) it reviews earlier articles as well as those published during the past decade, including articles appearing in *LQ,* and 3) it considers sampling methods and sample size; Lowe and Gardner do not. A summary of the methodological features of each of these LDP evaluation studies can be found in Table 2.2.

Table 2.2 Summary of Methodological Traditions in Selected LDP Evaluation Studies

Author(s) & Year	Theoretical Paradigms[a]	Research Setting[b]	Time Horizon[c]	Methodo-logical Approach[d]	Data Collection Methods[e]	Sample Methods & Size[f]	Analytical Methods – Quant.[g]	Analytical Methods – Qual.[h]	Level(s) of Anal.[i]
Abington-Cooper (2005)[j]	Behavioral Relational	Field	Cross sectional	Quant.	Survey	Census, *N*=243, *n*=131 (54%)	Descriptive, simple inferential		Ind.
Black (2006)[j]	Social learning, Transform., Behavioral	Field	Cross sectional	Both	Focus Groups, Surveys	Census, *N*=262, *n*=196 (75%)	Descriptive, simple inferential, multivariate	Content analysis	Multiple
Carter & Rudd (2002)	Behavioral Relational	Field	Cross sectional	Qual.	Interviews Secondary sources	Purposive *n*=30		Content analysis	Ind.
Chibucos & Green (1989)	Behavioral	Field	Cross sectional – Longitudinal[k]	Both	Document analysis, Surveys (2), secondary sources	Survey1: Census *N*=736, *n*=588 (79%) Survey2: Census *N*=304, *n*=147	Descriptive	Case	Ind.
Diem & Nikola (2005)	Behavioral Relational	Field	Cross sectional	Both	Survey	Census, *N*=63 *N*=50 (79%)	Descriptive, simple inferential	Content analysis	Ind.
Dugan & Komives (2007)[j]	Relational, Servant, Social change	Field	Cross sectional	Quant.	Survey	Census *n*=50,378 students *N*=52 campuses	Descriptive, simple inferential, multivariate		Ind.

Table 2.2 (Continued)

Earnest, et al. (1995)[j]	Behavioral Relational	Field	Longitudinal	Both	Interviews Focus groups, Surveys, Secondary sources (LPI)	Census *N*=67 *n*=57 Purposive *n*=36 Census n=7	Descriptive, simple inferential, multivariate	Content analysis	Ind.
Kelsey & Wall (2003)	Relational, Team leadership	Field	Cross sectional	Both	Survey, Interviews	Survey: census *N*=290, *n*=125 (43%); interview: extreme case *n*=8	Descriptive, simple inferential	Case	Ind.
Kets de Vries, et al. (2008)[j]	Transform., Cognitive-Behavioral	Field	Longitudinal	Both	Interviews Secondary sources (360), other	Census Self *N*=20 *n*=11 Observer *N*=70	Descriptive	Case, Content analysis	Ind.
Kho (2001)[j]	Relational	Field	Cross sectional	Qual.	Interview, Observation, Survey (secondary source)	Census, *n*=12		Case, Grounded theory, content analysis	Ind.
McLean & Moss (2003)	Servant & Relational	Field	Cross sectional	Both	Surveys (multiple), secondary sources (360-LPI)	Census, *n*=30	Descriptive	Case	Multiple
Muijs et al. (2006)	Transform. Transact. & Distributed leadership	Field	Cross sectional	Both	Survey, Focus groups, Interviews	Census *N*=5,000, *n*=1,511, (30%); 42 focus groups	Descriptive, Simple inferential, multivariate	Case (n = 10)	Multiple

Table 2.2 (Continued)

O'Connor & Walker (2003)	Distributed leadership	Field	Cross sectional	Both	Survey	Census (no *n*)	Descriptive	Content analysis	Ind.
Rohs (1999)	Behavioral	Exper.	Cross sectional	Quant.	Survey(s)	Census *n*=90	Descriptive, multivariate		Ind.
Rohs (2002)	Behavioral	Exper.	Cross sectional	Quant.	Survey(s)	Census *n*=147 (w/ control)	Descriptive, simple inferential, multivariate		Ind.
Sirianni & Frey (2003)	Action learning	Field	Cross sectional	Both	Survey(s), secondary sources	Census *N*=29	Descriptive	Content analysis	Multiple
Wituk et al. (2003)	Behavioral Servant & Relational	Field	Cross sectional	Qual.	Surveys (2)	Census, *n*=41 & *n*=35		Case, content analysis	Ind.
Totals: 17 studies	Behavioral =10 Relational = 9 Other = 6	Field = 15 Exper. = 2	Cross = 15 Longitudinal = 3	Quant. = 4 Qual. = 3 Both = 10	Survey=15 Inter. = 6 Focus=3 Observ.=1 Second.=7	Census = 15 Purposive = 3	Descriptive=13 Simple inf. = 8 Multi. = 6	Case = 7 Content = 8 Grounded = 1	Ind. = 13 Multiple = 4

Table Notes:

a) Many of the studies summarized here did not specify a theoretical paradigm, so those listed are reviewer's interpretations.
b) Field study or laboratory/experimental
c) Cross sectional (fixed point in time) or longitudinal
d) Quantitative, Qualitative or Both (mixed methods)
e) Survey (questionnaires), interviews, focus groups, observation, secondary sources, experimental measures, other
f) Because several of the studies reviewed here used various sampling methods for different data sources, the "sample methods & size" column may list more than one sampling method and sample size for a given study.
g) Descriptive (e.g. mean, mode, standard deviation, frequencies), simple inferential (e.g. t-tests, correlations), multivariate (including: regression, ANOVA, MANOVA, confirmatory factor analysis, other multivariate analyses)
h) Case study, grounded theory, content analysis, other
i) Individual, dyad, group, organizational, multiple, other
j) Not peer-reviewed journal articles, but meet my criteria for inclusion in this review
k) While longitudinal data was collected (immediately following program, and follow-up survey), only cross-sectional analysis was performed

Leadership paradigms. Several LDP evaluation authors did not specify a particular theoretical paradigm (at least as they were summarized above) used to guide their research. In those cases, judgments were made about their theoretical paradigms based upon their descriptions of the program being evaluated, data collection methods, instruments and analytical methods.

Of the 17 evaluations discussed here (See "Theoretical Paradigms" in Table 2.2), at least 10 appear to have adopted one of the behavioral approaches to leadership (i.e. they assessed specific leadership behaviors in their data collection and analysis). Nine of the evaluators discussed (implicitly or explicitly) relationships between actors (i.e. a relational approach) and all other theoretical paradigms (e.g. cognitive, servant, transformational) were addressed in six of the evaluation studies. It seems clear, then, that behavioral and relational traditions dominate these evaluation studies of the past 20 years, despite a proliferation of more complex, emergent leadership theories.

Research settings. All of the studies reviewed here were field studies, meaning they did not take place in an artificial laboratory setting, with two special cases. Both of the evaluations conducted by Rohs (1999, 2002) were field *experiments*, in that they included two treatment groups and a control group in their design. Rohs was the only author to assign subjects to groups, or use any type of control group data for that matter. This is because Rohs was more interested in studying the effects of response shift bias than he was in evaluating the outcomes of the LDPs he analyzed, but his data can be used for LDP evaluation purposes none-the-less.

Proponents of field studies often assert that because they do not take place in "artificial settings" commonly associated with experimental research, they are not as subject to charges of suspect external validity (Campbell & Stanley, 1967). However, one might speculate that a researcher's choice of a field setting has more to do with the ease of studying a program "as-is" as opposed to dealing with the difficulties of

control groups and manipulation of treatment groups. Regardless of the reason, clearly LDP evaluation research of the past two decades has favored field study settings.

Time horizons. Time horizons of these studies have favored cross-sectional (i.e. "snapshot in time") designs, with three notable exceptions. Kets de Vries, et al. (2008) employed a true, longitudinal design, collecting data over an extended period of time, and analyzing that data for changes in behavior across time. Earnest et al. (1995) likewise collected data from a variety of sources and determined that there was a significant difference in leadership behaviors of the LDP participants from pre- to post-treatment. Finally, while collecting data at different points in time, Chibucos and Green (1989) never really compared data from those different points in time to assess changes in behavior, thus it is difficult to label their study a true longitudinal design. Clearly, cross sectional (i.e. "snapshot") designs dominate the evaluation studies reviewed here.

Methodological approaches. The majority (10 of 17) of the studies reviewed here used mixed methods approaches (i.e. studies employing both quantitative and qualitative data). Purely quantitative approaches were used in only four studies, and purely qualitative approaches in only three studies. Mixed methods approaches thus accounted for 59 percent of the studies reviewed here, and as we shall see, other evaluation reviews confirm this preference.

Data collection methods. Despite criticisms that leadership researchers rely too heavily on self-report sources of data (Hunt & Dodge, 2001; Mason & Wetherbee, 2004; McDade, 1994; W.K. Kellogg Foundation, 2002), the studies reviewed here continue to show a strong preference for that data collection method; 15 of 17 studies used at least one survey questionnaire, and interview questionnaires were used in six of the studies. Several examples of self-report survey questionnaires and behavioral

instruments exist[3], and new instruments often accompany the development of a new theory (Scherbaum, Finlinson, Barden & Tamanini, 2006). But several authors urge caution regarding the interpretation of results from many of these instruments, due to methods biases (Podsakoff, MacKenzie, Lee & Podsakoff, 2003) and questions concerning the quality of psychometric evidence from certain measures (e.g. the MLQ) (Scherbaum, et al., 2006).

Secondary document analysis (e.g. employer performance appraisals, turnover statistics, and 360-degree feedback instruments) was used in seven of the studies. Focus groups were used in only three studies, and observation in only one. No experimental measures (e.g. aptitude tests) were used in any of the studies reviewed here. Whether they are the best choice for data collection, or dominate merely because they are the easiest way to collect data, questionnaires are clearly the predominant way in which these researchers collected data.

Three of the studies discussed here (Earnest, et al., 1995; Kets de Vries, et al., 2008; McLean & Moss, 2003) used 360-degree feedback instruments[4], but such instruments are widely used in other leadership development efforts (W.K. Kellogg Foundation, 2002). What distinguishes 360 instruments from self-report

[3] The Multifactor Leadership Questionnaire (MLQ) developed by Bass and Avolio is one example of an assessment used to measure the relative frequency of leader behaviors (Yukl, 1999). Some instruments are linked to a specific leadership paradigm; e.g. the C-K Scale is used to assess charismatic leadership behaviors (Yukl) and the Socially Responsible Leadership Scale (SRLS) used by Dugan and Komives (2007) to measure socially responsible leadership behaviors. Other instruments have been developed for specific audiences; e.g. the Youth Leadership Life Skills Development Scale (YLLSDS) (Rohs, 1999) and the Multi-institutional Study of Leadership (MSL) survey (Dugan & Komives, 2007) are intended for use with students, and the Managerial Assessment of Proficiency (MAP) is intended for use with business leaders (Rohs, 2002).

[4] "360 degree feedbacks instruments", or "360s" refer to any number of commonly used feedback instruments, generally collecting information about an individual's leadership behavior from supervisors, co-workers, direct reports (subordinates) and other observers. The Leadership Practices Inventory (LPI) by Kouzes and Posner (1987) is one such instrument, and is used with a variety of audiences due to its generic applicability and relatively low cost (as compared to commercial, customized 360s developed for specific clients). Still, others prefer to develop their own, specialized 360 for their specific needs. For example, Kets de Vries, et al. (2008) developed the Global Executive Leadership Inventory (GELI) for use with their international business executive clients.

questionnaires is their reliance on input from *observers* familiar with an individual's leadership behavior or ability, in addition to the self-perceptions of program participants.

Sampling methods. In the 17 studies reviewed here, sample sizes ranged from seven (program directors interviewed by Earnest, et al., 1995) to over 50,000 (students surveyed by Dugan & Komives, 2007). Fifteen studies relied on census data from their study population, three used purposive sampling, and *none* used random sampling methods. Convenience sampling of program participants and alumni dominates the sampling methods used in these studies, and random sampling is conspicuously absent.

Analytical methods - quantitative. One should not assume the use of quantitative methods in 14 of the evaluation studies (10 mixed, four quantitative) necessarily means sophisticated statistical methods were used for data analysis. On the contrary, most of the studies (n = 13) using quantitative data analysis provided descriptive statistics (e.g. mean, mode, standard deviation, frequencies), and eight used simple inferential statistics (e.g. t-tests, correlations). Only six studies (see Table 2.2) used any multivariate analysis methods (including regression, ANOVA, MANOVA, confirmatory factor analysis, or other multivariate analytical methods). In other words, only one-third of the studies reviewed used any multivariate analysis method. There appears to be much opportunity for advanced analysis of quantitative evaluation data.

Analytic methods - qualitative. Case study approaches were used in seven of the studies reviewed here, a grounded theory approach was adopted in only one (Kho, 2001), and content analysis was used in eight of the studies (see Table 2.2). As it is used here, "content analysis" refers to the analysis of responses to open-ended questions on instruments or through secondary document analysis. Kho (2001) used

"NUD*IST" software to conduct her qualitative analysis, and Earnest, et al. (1995) used "Ethnograph" software. The remaining six authors performing content analysis either did not specify or did not use qualitative analysis software to analyze open-ended survey responses. Where software was not used, it is reasonable to assume the researcher read and subjectively (and perhaps selectively) summarized respondent comments. Selective reporting of positive outcomes based upon qualitative analysis of participants' evaluation comments is problematic, and can exaggerate non-significant or even contradict negative results obtained through quantitative analysis of other evaluation data (Hattie, et al., 1997).

Levels of analysis. Of the studies reviewed here, 13 used an individual level of analysis, meaning the authors generally examined outcomes of the leadership development intervention at the participant (i.e. leader) level. Interestingly, none of the studies examined effects on followers (also an individual level outcome). Four studies (Black, 2006; McLean and Moss, 2003; Muijs, et al., 2006; Sirianni & Frey, 2003) used multiple levels of analysis (individual, organizational, community), but none examined dyad, team (i.e. work group) or societal level outcomes. The dominant level of analysis represented in the 17 studies reviewed here is clearly individual leader outcomes.

Summary of methodological features in recent LDP evaluation studies. Using the analysis provided in the preceding paragraphs, these evaluation studies can be summarized by describing what they *are*[5] and what they *are not*. These evaluation studies *are*: based on behavioral and relational theoretical paradigms, mixed-method approaches in field study settings of cross-sectional design, using participant data

[5] Hunter, Bedell-Avers & Mumford (2007) offered a similar description of "the typical leadership study". Though they admitted notable exceptions exist, they suggested, as this review does, that the preponderance of leadership studies fit this mold. In the case of qualitative and mixed methods studies, Bryman (2004) made similar generalizations (e.g. the preponderance of case study designs) based on an exhaustive review of qualitative and mixed method leadership studies.

sources, census sampling techniques, descriptive and simple inferential statistical analyses, subjective qualitative analysis, and examining individual-leader level outcomes. They *are not*: based on emergent leadership theories, of either strictly quantitative or qualitative approaches, experimental designs or longitudinal studies, using randomly selected or extensive other (i.e. non-participant) sources of data that is analyzed using multivariate methods or with computer-aided qualitative analysis; nor do they examine multiple levels of analysis commonly discussed in emergent leadership theories (e.g. dyad, team, societal). Admittedly, these are broad (and perhaps dangerous) generalizations based on a review of only 17 studies, but they illustrate the clear divide between what has been the practice of LDP evaluation and what could be.

Summary of Selected Reviews and Meta-Analyses of LDP Evaluation Research

In addition to the original LDP evaluation studies summarized above, other reviews of leadership and evaluation research (Lowe & Gardner, 2001; Mason & Wetherbee, 2004; Russon & Reinelt, 2004; W. K. Kellogg Foundation, 2002) and meta-analyses of LDP evaluation studies (Collins & Holton, 2004; Hattie, et al., 1997) serve to reinforce many of the observations made in the preceding sub-section.

Lowe and Gardner (2001) provided an excellent review of all (N = 188) theoretical/methodological and empirical articles published in the *LQ* during its first decade (1990 to 2000). While they use the term "scan", the W. K. Kellogg Foundation (2002) commissioned an independent consultant (Development Guild/DDI) to review the evaluations of 55 LDPs in diverse disciplines (hereafter the "Kellogg report"). While only analyzing three LDP evaluation studies, the review by Mason and Wetherbee (2004) is valuable in that it draws conclusions from a very specific discipline (library leadership) which corroborates the observations made by the more extensive reviews. Finally, the meta-analyses by Collins & Holton (2004) and Hattie,

et al. (1997), while differing substantially in their approach (they estimate LDP intervention effect sizes from various evaluation studies) and lacking much methodological specificity (at least as organized in this chapter) about the studies reviewed, provide useful conclusions none-the-less about trends in LDP evaluation research.

The cumulative body of work that these authors review is too extensive to detail here, but the following summaries are offered in support of some of the methodological observations discussed in the preceding sub-section. Methodological and conceptual differences in these reviews and meta-analyses make historical comparisons difficult (Collins & Holton, 2004), but the same organizational scheme is used, recognizing that each author will not be represented in every area below.

Theoretical paradigms. In Lowe and Gardner (2001), 23 percent (n = 47) of the studies reviewed fall into the "early theories" category (including trait, behavioral and contingency theories), 65 percent (n = 133) fall into the "more recent theories" category (including multiple level, information processing, neo-charismatic and other prominent approaches), and 14 percent (n = 29) fall into the "emergent theories" category. While not clearly specified, most of the studies reviewed by Collins and Holton (2004), Hattie, et al. (1997), Mason and Wetherbee (2004), and the Kellogg report (2002) appear to fall into the "early theory" category as well, as they consist primarily of trait, behavioral, and relational approaches to LDP evaluation. With the notable exception that the *LQ* appears to be a journal that devotes attention to more contemporary leadership theories (hence its reputation as the premier scholarly journal devoted to leadership research), these observations support the earlier suggestion that despite the proliferation of more recent and emergent leadership theories, most evaluation efforts appear to be stuck in an early leadership theory paradigm.

Research settings. From 1990 – 2000, field studies outnumbered laboratory experiments by four to one in the *LQ* (Lowe & Gardner, 2001). All three of the studies reviewed by Mason and Wetherbee (2004) were field studies as well. The two meta-analyses discussed here did not specify the proportion of field studies to laboratory experiments. Finally, not only did the Kellogg report (2002) indicate that only four of the 55 evaluations reviewed were experimental studies, but Russon and Reinelt (2004) went on to suggest that "…experimental and quasi-experimental evaluation approaches have limited use because they cannot accommodate leadership development programs that are responsive to the unique needs of each individual participant" (p. 106). Clearly field studies prevail, also consistent with assertions in the preceding sub-section.

Time horizons. Cross-sectional time horizons outnumbered longitudinal designs by four to one in the *LQ* from 1990 – 2000 as well (Lowe & Gardner, 2001). Once again, the meta-analyses do not provide enough information about time horizons of the studies they reviewed, and the description of the three library leadership studies (Mason & Wetherbee, 2004) is equally vague in this regard. The studies reviewed for the Kellogg report (2002) included retrospective evaluations (i.e. questionnaires administered to LDP alumni several years after completion of the program), but longitudinal data did not appear in the data collected for this report. Russon and Reinelt (2004) suggested that while many programs desire to evaluate outcomes and impact (considered to be mid- and long-term in nature), most evaluate short-term outputs due to a need to show immediate results to stakeholders. These suggestions support the analysis of original evaluation studies in the preceding sub-section, and underscore the need for more longitudinal evaluation.

Methodological approaches. Over two-thirds of the studies presented in *LQ* from 1990 – 2000 used quantitative methods, just over one third used qualitative

methods and 13 percent used both (Lowe & Gardner, 2001). All three studies summarized by Mason and Wetherbee (2004) adopted mixed-method approaches. Russon and Reinelt (2004) suggested that the use of mixed methods in so many of the evaluations reviewed for the Kellogg report (2002) allowed researchers to triangulate data and compensate for the weaknesses of any one evaluation method. Evaluation techniques utilized in many of the 83 studies analyzed by Collins and Holton (2004) also included both quantitative and qualitative methods, as did many of the 96 studies analyzed by Hattie, et al. (1997). Though mixed methods approaches may compensate for weaknesses in any one approach, according to Hattie, et al., the predominant use of "soft" forms of evaluation (e.g. narrative accounts and case studies) in some studies has left many researchers wanting for more measurable effects. Aside from submissions to the *LQ*, which appear to be more specialized in methodological approach and favoring quantitative analysis, much of the research published through other outlets appears to favor mixed method approaches, consistent with the observations of the preceding sub-section.

Data collection methods. Perhaps in no other category of methodological features was there more agreement among the various authors than in the case of data collection methods: there is a tremendous over-reliance on data collected from program participants. Survey research (questionnaires = 66 percent and interviews = 20 percent) dominated the data collection methods reviewed by Lowe and Gardner (2001), and other forms of data collection (observation = 8 percent, secondary sources = 27 percent, experimental measures = 7 percent, other = 4 percent) were used much less frequently. Collins and Holton (2004), Hattie et al. (1997), Mason and Wetherbee (2004), and Russon and Reinelt (2004) all noted the prevalence of self assessments (and to a lesser extent the use of 360s), as data collection tools. The proportions reported by Lowe and Gardner in particular are similar to those reported for the

original evaluation studies summarized in the preceding sub-section. Clearly, self report measures dominate the data collection methods of LDP evaluation studies.

Sampling methods. None of the authors of these reviews or meta-analyses describe in detail the sampling methods of the evaluation studies they reviewed. Based on the prevalence of self-report data collection methods and the descriptions of a few of the evaluation studies analyzed by these authors, we might infer that surveys were administered to census populations of program participants and/or alumni in many of these studies. Census methods were clearly preferred (15 of 17) by the evaluation studies reviewed in the preceding sub-section.

Analytical methods - quantitative. In the 78 empirical articles published in *LQ* from 1990 to 2000, the vast majority of studies (87 percent) used descriptive statistics, about two-thirds used simple inferential statistics, and multivariate statistics were used much less frequently[6] (Lowe & Gardner, 2001). Because their meta-analytical methods (to allow calculation of effect sizes) required it, we know that the 83 studies analyzed by Collins and Holton (2004) and the 96 studies analyzed by Hattie et al. (1997) provided at least descriptive (e.g. means and standard deviations) and simple inferential statistics (e.g. *t*-value and correlation coefficient), but we do not know how many of those 179 studies used multivariate methods. The Kellogg report (2002) also noted a dearth of sophisticated, quantitative analysis methods in evaluation studies, what they called "systemic impacts" assessment. These observations support the earlier assertion that descriptive and simple inferential statistics dominate the quantitative methods in LDP evaluation.

Analytic methods - qualitative. Though not helpful in their quest to calculate effect sizes for meta-analyses, Hattie et al. (1997) noted the prevalence of "soft" (i.e.

[6] For a detailed reporting of multivariate statistical methods used and the number of studies using them, see Lowe & Gardner, 2001, Table 8, pp. 487-488.

qualitative case studies and narrative) approaches in adventure education programs. The three studies reviewed by Mason and Wetherbee (2004) were also case study analyses using narrative excerpts. And in the 40 studies Lowe and Gardner (2001) reviewed that used qualitative analytical methods, case studies were used in nearly half, content analysis was used in just over half, and grounded theory was used in nearly one quarter. The Kellogg report (2002) also noted the prevalence of case studies as a qualitative analytical method. With the exception of Lowe and Gardner, these authors did not explicitly discuss the use of content analysis, but given their acknowledgement of the widespread use of survey and interview questionnaires, 360s, and other self report measures, it is reasonable to assume that content analysis is a method used to analyze those data sources. Combined with the analysis of evaluation studies in the previous sub-section, it is suggested that case study and content analysis are the dominant methods of qualitative analysis, with grounded theory and other methods used less frequently.

Levels of analysis. In the theoretical/methodological *LQ* articles, over half of the studies reviewed used an individual level of analysis, about one quarter of the studies used multiple levels of analysis (i.e. individual and dyad, group, or organization), and dyad, group or organizational level analysis alone were each used in fewer than 10 percent of the studies. In the empirical *LQ* articles, individual levels of analysis were used in over 90 percent of the studies, and dyad, group, organization, and multiple levels of analysis were used in 10 percent, 11 percent, 7 percent, and 7 percent of the studies, respectively (Lowe & Gardner, 2001). The Kellogg report (2002) also acknowledges that many LDP evaluation studies seek to evaluate program outcomes at multiple (i.e. individual, organizational, and community) levels (Russon & Reinelt, 2004), but they do not specify the proportion of studies that analyze each of these levels. While not explicitly described, given the nature of the participants

(predominantly students, youths, and young adults in adventure learning and wilderness education programs) in the studies analyzed by Hattie, et al. (1997), we can speculate that individual levels of analysis predominated, since it is unlikely these individuals came to the programs from the same organizations or communities.

In their meta-analysis of 83 LDP evaluations, Collins and Holton (2004) identified six different levels of analysis: knowledge-objective, knowledge-subjective, expertise-objective, expertise-subjective, system-objective, and system-subjective. Of these, one can interpret both knowledge and expertise outcomes as individual level outcomes, and system outcomes as organizational outcomes. Further, Collins and Holton did not identify enough evaluations to conduct a meta-analysis in the system-subjective category, and only seven studies were identified in the system-objective category. Thus, organizational level outcomes were represented in a minority of the evaluations analyzed.

In summary, and consistent with the analysis of the 17 original evaluation studies in the preceding sub-section, though many LDP evaluations aspire to determine program effects at multiple levels, the reality is that most do so only at the individual outcome level.

Summary of methodological traditions from reviews and meta-analyses. While not all of the studies specifically addressed *LDP evaluations* per se, Lowe and Gardner's (2001) review of the first ten years of publications in the *LQ* provided a summary of theoretical paradigms of leadership and also analyzed the designs and methodological approaches used by authors to study leadership during that period. "Early theories" of leadership appeared in 23 percent of the studies, "new approach" paradigms appeared in 65 percent[7], and "emerging theories" appeared in 14 percent.

[7] Lowe and Gardner (2001) argue that transformational-charismatic-values based leadership paradigms (i.e. "newer theories") have predominated around the turn of the century.

The studies reported were predominantly quantitative field studies, using a cross-sectional time horizon. Self-report data collection methods were prevalent, and they used descriptive and simple inferential statistics more frequently than multivariate analysis. Further, individual levels of analysis (i.e. leader, follower, or other) were more prevalent than other multi-party levels.

With the exception of the prevalence of quantitative studies in the *LQ* from 1990 to 2000, the conclusions we can draw from the W. K. Kellogg Foundation's review (2002) of 55 LDP evaluations are virtually identical. These evaluations were predominantly mixed methods approaches, in field settings with cross sectional time horizons; there was a preference for self-report measures, and where quantitative analyses were performed, they tended to be of a descriptive or simple inferential nature. Qualitative analysis (case studies and content analysis) was perhaps more prevalent in this group of evaluations, and though attempts were made to evaluate outcomes at multiple levels, most succeeded only at demonstrating individual, short-term outputs.

The Theory-Practice Gap

Issues Related to the Practice of Leadership Development

In his comprehensive review, Day (2000) examined research on leadership development through three (conceptual, practice and research) contextual lenses and concluded that there was a disconnect (i.e. theory-practice gap) between the practice of leadership development and its scientific foundation. Conceptually, Day asserted that there was much confusion about the difference between leader (i.e. individual actor) and leadership (i.e. collective leadership capacity of groups) development. Day claimed that traditional training approaches aimed at "training individual, primarily intrapersonal, skills and abilities…ignore almost 50 years of research showing leadership to be a complex interaction between the designated leader and the social

and organizational environment" (p. 583). In fact, leadership is sometimes conceptualized as much as an emergent property (or effect) of a social system as it is a cause of that system (Drath, 1998, as cited in Day, 2000). Uhl-Bien's (2006) Relational Leadership Theory (RLT) is but one example of such an emergent theoretical perspective that seeks to understand the complex social processes of leadership (see also Graen & Uhl-Bien, 1998), and other leadership theories have been developed in the decade since Day conducted his review. However, not only have many LDPs[8] failed to incorporate contemporary theoretical paradigms into their curricula[9], but many LDPs operate without an explicit program theory altogether (Russon & Reinelt, 2004).

Also called a "theory of change" (by Russon & Reinelt, 2004), these theories are a description of how and why a set of activities are expected to lead to certain outcomes and impacts. Though some LDP practitioners undoubtedly design and implement programs based on implicit theories of how their programs should work (Weiss, 1997a), what is clear is that many LDPs operate without any type of formal, explicit theory. What is needed is the development of more elaborate theories about how such programs work in context (Bickman, 1987).

Not only do many LDPs lack an explicit theory about how they should work, Conger (1993, as cited in Day, 2000) has also suggested that leadership development efforts sometimes become a haphazard process in organizations, due to the "embedding of [leadership] development in the ongoing work of the organization without sufficient notice to intentionality, accountability, and evaluation" (p. 586).

[8] Deadrick and Gibson (in press) noted a similar research-practice gap in the human resources literature.
[9] For example, despite evidence that a transformational leadership style (i.e. one that seeks to fundamentally *change* individual or organizational behavior) might result in higher levels of effectiveness, most training focuses on transactional behaviors (i.e. exchange relationships between individual actors) because they are easier to train (Russell & Kuhnert, 1992 as cited in Lowe & Gardner, 2001).

Similarly, Sobeck and Agius (2007) suggested that organizational capacity building initiatives (here considered to be akin to leadership development efforts) were often done by "hunch" due to the gap that existed between the practice of organizational capacity building and published evaluation research that might clarify the processes that lead to successful capacity building efforts.

Issues Related to Theory and Research in Leadership Development

Conceptual shortcomings do not lie solely within the practice domain, however. Many typical leadership studies are fraught with problematic theory-based assumptions (Hunter, Bedell-Avers, & Mumford, 2007). For example, many leadership studies sample managers under the fallacious assumption that all managers are leaders (Zaleznik, 1977, as cited in Lowe & Gardner, 2001) and other studies that sample subordinates to learn about leadership often assume that subordinates are followers (Lowe & Gardner, 2001). Yukl (1999) suggested that the emphasis on the universal applicability of certain theories had not adequately considered limiting conditions that might mitigate their applicability. Boal and Hooijberg (2001) found that demographic variables were inappropriately used as psychosocial constructs. Collins and Holton (2004) added that "small sample sizes [a methodological limitation common to most managerial LDP studies] limited the evaluation of possible moderators of managerial leadership development interventions" (p. 240).

Popular theories of leadership often have other conceptual weaknesses. For example, in his evaluation of transformational and charismatic leadership theories, Yukl (1999) noted that underlying influence processes are not described adequately, nor did they specify how leadership behaviors (i.e. observable outcomes) are related to these processes. Many of these conceptual shortcomings are shared with other popular leadership theories that fail to adequately articulate the processes through which they work, the limitations to their applicability, and the relationships to other moderating

variables. And though now somewhat dated, Jago's (1982) argument that existing leadership research had concentrated on relatively few leadership constructs, is still relevant today. In addition to the previous examples of conceptual shortcomings, many leadership models or theories in general are not contextualized (Zacarro & Horn, 2003).

At a more basic level, Hunt (2004) suggested that how we answer the question "What is Leadership?" depends on the ontological and epistemological assumptions (i.e. antecedents) one makes about the purpose and definition of leadership. In other words, prior to answering the question, Hunt suggested we must first consider such things as our definition of leadership, the leader's purpose, historical context of the leadership situation, levels of analysis, relations between actors, and dynamic aspects of leadership. In related writing, Hunt and Dodge (2001) suggested that acknowledgement of these antecedents will help researchers avoid "…leadership déjà vu and academic amnesia…" (p. 435). Bryman (2004) likewise suggested that many researchers fail to build sufficiently upon the earlier work of others.

Beyond construct identification to construct validation. Construct identification and explication (i.e. conceptualization of leadership development constructs in practice) is not the only problem facing leadership development researchers; there have been calls for greater construct validation in leadership research as well. Billsberry (2009) has argued that leadership may be thought of as a complex set of contested constructs, so it should come as no surprise that "Currently, there is an almost dizzying set of [construct measurement] options available" (Scherbaum et al., 2006, p. 367) [10]. Scherbaum et al. went on to suggest, however, that many leadership construct measures have not kept pace with advances in psychometric

[10] Scherbaum et al. (2006) added: "As leadership theories and research have proliferated, the catalog of leadership measures available for research and practice has grown at leaps and bounds." (p. 367).

theory and methods, and that "…some of the most prominent leadership measures have suffered from debates concerning the nature of the construct measured and the quality of the psychometric evidence for the measurement of the construct" (p.367).

Yukl (1999) also criticized previous leadership research (specifically related to transformational and charismatic leadership theories) for inadequate construct validation and testing. For example, Yukl suggested most transformational and charismatic theories are conceptualized at the dyadic (i.e. leader-subordinate) level, at the expense of consideration of other levels of analysis (e.g. group, or organization). In general, Yukl's conceptual criticisms pointed to overemphasis on the universal applicability of certain theories at the expense of adequate explication of underlying influence processes, leader behaviors, situational variables, and potential negative effects.

Schriesheim and Cogliser (in press) offered a compelling argument regarding the need for greater construct validity in leadership research, suggesting that because a construct is "a hypothetical variable that cannot be directly observed and reflects hypotheses (often implicit and incomplete) about other variables to which it will be related and not related" (p. 1), "…data showing the construct's relationships with other variables (especially observable behaviors) to which it theoretically should or should not be related is particularly informative" (p. 2). Schriesheim and Cogliser conducted three studies related to the Leader-Member Exchange subordinate scale (LMX-7, Graen & Uhl-Bien, 1998), and found that the subordinate version of the LMX-7 did not possess adequate demonstrated discriminant validity (Campbell & Fiske, 1959). Given that the LMX-7 was conceptually defined to be different from supportive leadership and satisfaction with supervisor constructs, Schriesheim and Cogliser concluded that the LMX-7 could conceivably be replaceable by other measures of supportive leadership and/or satisfaction with supervisor in future studies.

Schriesheim and Cogliser's (in press) research draws attention to the inadequate attention that has been paid to construct validity in leadership research. These authors went on to suggest that "our knowledge regarding abstract conceptual phenomena [i.e. constructs] is bounded by the extent to which their presumed indicators are aligned with their theoretical underpinnings" (p. 1) and therefore "the establishment of construct validity must begin with the theoretical definition of the construct" (p. 2). Suggesting that construct validity is of the utmost importance because leadership researchers are typically measuring constructs (i.e. hypothetical variables that are not directly measureable), Schriesheim and Cogliser concluded "if we do not begin to take construct measurement more seriously in leadership research we are going to continue to build skyscrapers of theory that have their foundations on a bedrock of jello" (p. 11).

Construct Identification and Conceptualization of Program Theory

The Need for more Theory-Based Evaluation (TBE)

Chen (1990) advocated a movement toward theory-driven approaches to evaluation, arguing that traditional approaches – which concentrated primarily on designs and methods of inquiry – had become too method-driven. Theory-driven designs based on Chen's approach are primarily concerned with internal validity and deductive models of grand theory (Kolb, 1991). Kolb differentiated *theory-driven* approaches from *theory-focused* designs, noting that the latter are more interpretive and "intended to allow programmatic themes or contextual issues not specified in theory to emerge throughout the process of evaluation" (p. 49).

Weiss (1997a) continued the call for increased use of Theory Based Evaluation (TBE), suggesting that even evaluations that can give good estimates of program impact (i.e. cause and effect relationships) often fail to explain how and why the program was able to achieve certain impacts. According to Weiss (1997a, p. 501),

"The root idea of TBE is that the beliefs and assumptions underlying an intervention can be expressed in terms of a phased sequence of causes and effects (i.e. a program theory)", and added that TBE requires that program theory be generated in advance to be used in structuring program evaluations. Weiss (1997b) also suggested that situations where the evaluator is also the program developer (as is the case with the present study) are particularly conducive to TBE. A program designer "develops theory, operationalizes the theory in a set of program activities, tests the program and therefore the underlying theory through evaluation, and revises the intervention. Such a cycle has a long and honorable history in several fields…" (Weiss, 1997b, p. 71).

Addressing concerns about types of evidence for impact evaluations, Chatterji (2008, p. 25) added "…better designs for impact evaluations are developmental and systematic and examine multiple causal influences guided by the program's theory and underlying logic, rather than examining the singular link between a program and an outcome." Such theory-based approaches to program evaluation are not concerned simply with measurement of program inputs and outcomes, but seek to understand the underlying processes of programs as conceived and as implemented. TBE thus helps us avoid the "black box" evaluations described by Grayson (1992).

Concept Mapping as a Tool

For generating program theory. The preceding paragraphs made the case for increased use of theory in evaluation, and CM is one approach that can help researchers generate program theory. Increasing the use of theory in leadership research is seen as a means to help stakeholders create a more effective leadership theory and practice symbiosis (Zacarro & Horn, 2003). As Zacarro and Horn have suggested, practitioners often mistrust the processes and outcomes of basic research, which may widen the divide between the research and practice communities. CM, because it "expresses the conceptual framework in the language of the participants

rather than in terms of …the language of social science theorizing" (Trochim, 1989a, pp. 15-16), provides an attractive method for practitioners to become more involved in the generation of the conceptual framework (and program theories) of leadership development, and as such, may help bridge the divide between research and practice communities.

CM is a structured conceptualization technique (Caracelli, 1989) that facilitates the development of theoretically expected outcome patterns (Trochim, 1985), thus it is ideally suited to developing program theories. In practice, CM projects yield *cluster maps*, among other forms of graphical output. Each cluster in these maps represents a construct, and individual statements within that cluster can help explicate that construct. Additionally, the relations between statements and constructs help to identify the underlying theoretical framework of the case in question. It is important to remember that all of this is done graphically, so in that regard concept maps constitute a type of logic model (Kane & Trochim, 2007). If individual statements (in this case, representing specific program outcomes), clusters (representing logical groups of statements, i.e. specific constructs), and the relations between each of these (depicted as *regions* in the map, which represent broader, generalized concepts) are all adequately described, we shall have a plausible and sensible model of how the program is supposed to work – a program theory (Bickman, 1987; Trochim, 1989c).

For improved construct validity. As noted earlier, several authors (e.g. Scherbaum et al., 2006; Schriesheim & Cogliser, in press; Yukl, 1999) have called for improvements in the construct validity of leadership research, and CM is well-suited to address a number of validity concerns (Dumont, 1989) through a pattern matching approach (Trochim, 1985). *Construct validity* is defined as "the degree to which inferences are warranted from the observed persons, settings, and cause and effect operations included in a study to the constructs that these instances might represent"

(Shadish, et al., 2002, p. 38), or, as Trochim (1985) suggested: "Construct validity refers to the degree to which observations can be said to reflect their theoretical constructs" (p. 576).

At a basic level, if a study is to have construct validity, care must be taken to articulate the construct(s) in question thoroughly. This careful articulation of the construct is viewed as a matter of conceptualization (Trochim, 1985). If our conceptualization of the construct is rich, we will have naturally addressed (by identifying plausible alternative explanations) many of the threats not only to construct validity, but to internal validity as well. Or, as Cook and Campbell (1979) asserted: "The probability of ruling out threats [to validity] depends in part on the specificity of the predicted data pattern…" (p. 120). Cronbach and Meehl (1955, p. 187) also suggested: "'Learning more about' a theoretical construct is a matter of elaborating the nomological network in which it occurs, or of increasing the definiteness of the components." Finally, Lissitz and Samuelsen (2007) suggested that without a theory that explains relationships of interest (what they call a nomological network) we cannot have construct validity. Thus, describing constructs explicitly is essential to achieving construct validity.

Of course, theory alone is not sufficient for construct validity; our theoretical constructs must also be supported by observation or measurement. As Cronbach and Meehl (1955, p. 291) suggested: "…unless the [nomological] network makes contact with observations…construct validation cannot be claimed." From the preceding discussion, it should be apparent that detailed conceptualizations are essential to construct validity, and that those expected patterns of relationships must be corroborated by observed or measured patterns of the same relationships.

Pattern matching generally refers to a correspondence between a conceptual expectation pattern and a measured or observed pattern (Davis, 1989; Marquart, 1989;

Shadish et al., 2002; Trochim, 1985). When a researcher expects that manipulation of a treatment or independent variable will result in some outcome or change in a dependent variable, and observed outcomes or measurements of change in the dependent variable confirm that expected relationship, then a pattern match is established. Or, as Marquart (1989) said:

> The value of the pattern match is that the validity of the conclusions drawn is strengthened if the pattern predicted by the theory is found in the data, because the likelihood that such a pattern of results could have occurred by chance is small. (p. 37)

Thus, a "match" in the conceptually expected pattern (i.e. intended outcomes resulting from a given intervention; part of program theory) and the observed pattern of outcomes not only supports hypotheses about the relationship between the independent and dependent variables, but also provides substantial evidence for the construct validity of our measures (Marquart, 1989).

Much of Trochim's (1985) pattern matching approach is based on the multitrait-multimethod (MTMM) matrix originally proposed by Campbell and Fiske (1959), which is often used for the purpose of establishing construct validity (Davis, 1989). Two sub-types of validity, convergent and discriminant (also referred to as divergent by Davis), are necessary if the MTMM approach is to establish construct validity. Convergent validity suggests that there should be agreement among indicators which claim to measure the same construct. Discriminant validity suggests that there should be a divergence of measures of similar but conceptually different constructs. If we have convergence of measures of the same traits *and* discrimination of measures of different traits, then the case for construct validity is supported (Campbell & Fiske, 1959; Davis, 1989; Trochim, 1985).

Furthermore, when we consider the threats to construct validity (e.g. inadequate explication of constructs) and potential remedies to those threats as offered by Shadish et al. (2002), we see that many of these remedies may also be used to address threats to internal validity. This suggests that improving construct validity can enhance internal validity. Trochim (1985) summarized the issue as follows:

> More specific and detailed theoretical patterns will improve the construct validity of the cause (program implementation), the effect (measurement), and the cause-effect relationship. In addition, more complex patterns reduce the chances of finding plausible alternative explanations for an effect pattern, thus improving internal validity. (p. 602)

For program evaluation. In general, CM can be used to develop a framework that can guide program evaluation (Galvin, 1989), i.e. the theory that concept mapping helps articulate tells evaluators what they should be looking for (and measuring) in outcome evaluations. More specifically, CM can assist with several specific tasks faced by program evaluators (Kane & Trochim, 2007). First, CM facilitates the development of program logic models which serve as an overall guide to the evaluation process. Such models graphically portray the program theory and the relationships between constructs. Next, CM guides the development of evaluation questions. Here, each cluster can be viewed as a measurement construct and each statement within a cluster suggests specific operationalizations of measures within that construct (Trochim, 1989a). In other words, specific statements within clusters can lead to the development of specific evaluation questions to measure that construct.

Next, CM can assist with the development of measures and scales. For example, once specific program outcomes are identified in a CM project, a scale can be developed to assess stakeholder perceptions of how well the program is achieving those outcomes. Pattern matching can then be used to assess program outcomes. If our

expected correlations between measures (the theoretical pattern) match correlations obtained by the measures (the observed pattern), we have some evidence for the construct validity of our measures (Trochim, 1985). CM can also facilitate the reporting of evaluation data in graphical form. In other words, data collected and analyzed during the evaluation can be shared via the same graphical displays that CM provides. This often makes it easier for program stakeholders to examine and comprehend complex patterns of outcomes.

For some program outcome evaluations, a pattern matching approach (facilitated by a concept mapping project) may be more useful than traditional research methods that take a narrow hypothesis testing approach. Often, such traditional research methods test a fairly specific hypothesis, looking for a difference between groups on only one measure (i.e. utilizing only one independent and one dependent variable), and drawing conclusions based upon statistical tests (e.g. *t*-tests for significance). Outcome pattern matching, on the other hand, looks for *patterns* of effects (often across a number of measures or variables) and seeks to match those to equally complex theoretically expected patterns (i.e. intended outcomes). In such studies, even with non-significant *t*-values or low statistical power, we may still detect a *pattern* of effects (Caracelli, 1989; Trochim, 1989c). Or, as Chatterji (2008, p. 25) suggests, "studies examining additive and multiplicative effects of relevant variables on outcomes" and "designs that recognize multiple causation as part of studying a program systematically in its natural ecosystem will likely yield a better grade of evidence".

The preceding paragraphs primarily address the usefulness of CM in program *outcome* evaluation. However, CM is also useful in program *process* evaluations; i.e. where we seek to understand how and why the program operates and may or may not achieve its desired outcomes, and if the program has been implemented as intended.

Day (2000) suggested that effective leadership development is less about which specific practices are endorsed than about consistent and intentional implementation. Without an explicit program theory to guide the development effort, it is unlikely the intervention will consistently and intentionally apply treatment(s), which, of course, presents additional challenges to program evaluation. CM thus helps us avoid "black box" evaluations (Grayson, 1992) because the program theory it helps explicate necessarily describes the mechanisms through which the program seeks to achieve its desired outcomes.

Summary

This chapter was intended to bring the reader down a progressively narrowing funnel of leadership and program evaluation literature. At the top of the funnel, a relatively broad view of predominant leadership theories was taken. Leadership development efforts have garnered the interest of researchers in fields as diverse as agriculture and rural development, health care, higher education, library management, organizational behavior, management science, and educational administration, to name a few. Providing such an overview of predominant theoretical orientations of the past half-century allows the reader to appreciate the diverse and complex perspectives that leadership researchers bring to the evaluation table. Based on this section, a very general observation is that the past 50 years have seen a plethora of new, overlapping, and sometimes conflicting leadership theories.

Next, this chapter reviewed the methodological traditions utilized to evaluate the practice of leadership development. Here, a slightly narrower view was taken, in that only evaluations of formal leadership development programs targeting adult populations were considered. The chronological focus was also narrower, in that virtually all of the LDP evaluations reviewed in this section were conducted in the past 20 years. The purpose of this section was to provide the reader with some

understanding of how previous leadership development researchers had conducted program evaluations, so that we might explore new directions for evaluation research in leadership development. Again, based on this section, a very general observation is that LDP evaluations to date have largely relied on a limited set of methodological approaches[11]. Furthermore, these limited approaches have done little to further our understanding of how LDPs work, and have left both scholars and practitioners largely unsatisfied with the results of this evaluation research.

The focus of this chapter then narrowed again, examining the disconnect (Day, 2000) or research-practice gap (Sobeck & Agius, 2007) between leadership *theory* and the *practice* of leadership development. While leadership scholars offer new theoretical paradigms and sometimes test new theories through empirical research, the reader should not assume that this necessarily carries over to the practice of leadership development and subsequent program evaluation. On the contrary, leadership scholars and leadership development practitioners (many of whom are responsible for the evaluation of their own program) often appear to be on different pages entirely[12]. While leadership theories have evolved into rich, complex descriptions of the underlying processes and relationships involved in leadership, the present analysis supports the observation that much leadership development work (and evaluation of that work) appears to be stuck in early trait and behavioral paradigms.

[11] Several authors have honorably stepped up to the challenge of offering comprehensive LDP evaluation models (Grove, Kibel & Haas, 2005; Hannum, Martineau & Reinelt, 2007; Martineau & Hannum, 2004) and have also suggested that evaluation can and should be an integral part of program design and implementation. Should this occur, the added benefit of connecting theory and practice may also be realized. However, few examples of these evaluation models in use have been published, so it is unclear if LDP evaluators are making wide use of these models.

[12] This is not the first time such an accusation has appeared in the leadership literature (see Cummings, 1981, as cited in Bryman, 2004). Calls for connecting leadership development practice and theory (Day, 2000; Zaccaro & Horn, 2003), and calls for improved evaluation methods have appeared in the literature for some time (Bryman, 2004; Hunter, Bedell-Avers, & Mumford, 2007; Jago, 1982; Karmel, 1978; Lowe & Gardner, 2001; Parry, 1998).

Finally, this chapter's focus narrowed again, offering concept mapping (CM) as a tool to address many of the foregoing concerns. The literature suggests that CM can be used to generate program theory (Kane & Trochim, 2007) and in turn facilitate theory-based evaluation (Chen, 1990; Chen & Rossi, 1989; Weiss, 1997a; Rogers, 2007) of LDPs. An added benefit is that because leadership development practitioners and other program stakeholders have a role in generating theory through a CM approach, they may be more inclined to accept that theory (and subsequent evaluation results), which in turn may narrow the divide between the research and practice communities. Furthermore, CM addresses (Trochim, 1985) several of the construct validity concerns raised by other authors (e.g. Scherbaum et al., 2006; Schriesheim & Cogliser, in press; Yukl, 1999). And finally, CM is a tool that can provide the theoretical framework for subsequent outcome evaluation work (Kane & Trochim, 2007; Trochim, 1989a).

CHAPTER 3

RESEARCH METHODS

Overview

Concept mapping is a structured conceptualization method that can be used to help a group describe its ideas on any topic of interest (Trochim, 1989a) and represent these ideas visually in the form of a map. The process typically requires participants to brainstorm a large set of statements relevant to the topic of interest, individually sort these statements into piles of similar ones and rate each statement on one or more scales, and interpret the maps that result from the data analyses. The analyses typically include a two-dimensional multidimensional scaling (MDS) of the unstructured sort data, a hierarchical cluster analysis of the MDS coordinates, and the computation of average ratings for each statement and cluster of statements. The maps that result show the individual statements in two-dimensional (x,y) space with more similar statements located nearer each other, and show how the statements are grouped into clusters that partition the space on the map. Participants are led through a structured interpretation session designed to help them understand the maps and label them in a substantively meaningful way.

The general procedure for concept mapping is described in detail in Trochim (1989a). The process can be implemented in a variety of ways and involves these six steps: a) preparation, b) generation of statements, c) structuring of statements, d) representation of statements, e) interpretation of maps and f) utilization of maps. Each of these steps is described in greater detail below. For this project, all analyses were conducted and maps were produced using the Concept System© computer software[13] that was designed for this process.

[13] The Concept System© computer software is used to consolidate and edit brainstormed statements, export and print these for sorting and rating, import and enter sorting and rating data, conduct the statistical analysis (including multidimensional scaling and hierarchical cluster analysis) and display a

Preparation

Human subjects research. The researcher had previously completed mandatory human subjects research training at Cornell University. Because the source statements and aggregate sorting and rating data used in this project cannot be associated with any identifiable personal information, a request for exemption from full review was submitted to the university's Institutional Review Board (IRB). The IRB provided the researcher with a Concurrence of Exemption. Though not required by the IRB, informed consent (see Appendix A) was obtained from each of the study participants regardless of whether they completed the brainstorming, sorting or rating activities.

Sampling design. Participants in the study included the 18 members of the LEADNY Board of Directors (the board) and alumni of the LEADNY Program. At the time this study was conducted, 344 individuals had completed the LEADNY program. Of these, two are deceased, one is the researcher (excluded from data generation), and the program no longer had any valid contact information (mailing address, telephone number or e-mail) for eight alumni, meaning there were 333 potential alumni-participants. This study involved three phases of data collection (statement generation, sorting, and rating), and participants in each phase of the study are described in detail in the "study participants" sub-section, below.

For the statement generation phase (i.e. brainstorming), all alumni (N = 333) were invited to participate, and 25 individuals volunteered to do so (7.5 percent participation). Patton (1987, 2002) refers to this as a *convenience sampling* technique, which may have associated problems of volunteer effects. However, in each of the brainstorming sessions, the researcher noted a significant amount of overlap in statements generated, suggesting that the range of outcomes being identified was

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wide variety of map results. Information about the software may be obtained by writing to Concept Systems Incorporated, 134 The Commons, Ithaca NY 14850, calling (607) 272-1206 or FAXing (607) 272-1215 or visiting the website at http://www.conceptsystems.com/.

saturated (personal communication with Trochim, 2009). As described in the "statement synthesis" sub-section below, the generated statements were compared with a list of intended program outcomes, and this analysis also suggested that the generated statements saturated the expected range of outcomes. Therefore, though the number of participants in the brainstorming process was relatively low, the researcher was confident that the range of potential outcomes had been adequately identified.

The sorting phase utilized a more purposeful, multi-stage, and emergent sampling technique (Patton, 2002). Typically, it is desirable to have 25 to 30 people complete the sorting process (Kane & Trochim, 2007). Knowing that the board was too small a group (N = 18) for this task, and wanting to conduct a quasi-field test on the sorting process (i.e. make sure the materials and instructions for sorting were clear), the researcher invited a limited number (N = 19) of Ithaca-area alumni to campus to sort the statements, and five took part. Then, a sorting activity was held in conjunction with a scheduled meeting of the board in Albany, NY. Because board meeting attendance is rarely 100 percent, additional Albany-area alumni (N = 39) were invited to join the board for the sorting process, and four took part (in addition to 12 board members). Following this sorting meeting, it became apparent that producers were under-represented in the sorting process, so an additional sorting meeting was scheduled in Batavia, NY; the geographic area with a particularly high density of producer-alumni. Thirty-two alumni were invited to this meeting, and six (plus one additional board member) took part. Such a purposeful sampling strategy was guided by a programmatic interest: program managers believe that functional background diversity (i.e. type of employment) is a salient demographic characteristic related to team performance (Bunderson & Sutcliffe, 2002; Pelled, et al., 1999). In total, the 18 member board and 90 additional alumni were invited to one of these three sorting meetings, and 28 individuals (26 percent response rate to the invitations) took part.

The 23 program alumni (the other five participants were non-alumni board members) in this group represent roughly seven percent of the total alumni population.

For the rating phase, a convenience sampling technique was again employed. All available alumni (N = 333) were invited to participate, and 122 volunteered to do so (36.6 percent[14]). There was considerable overlap in the study sample over the three phases of data collection (i.e. brainstorming, sorting, and rating). Each sphere in Figure 3.1 represents one data collection phase, and the numbers within each region of the Venn diagram represent the number of participants that completed that phase (or phases) of data collection.

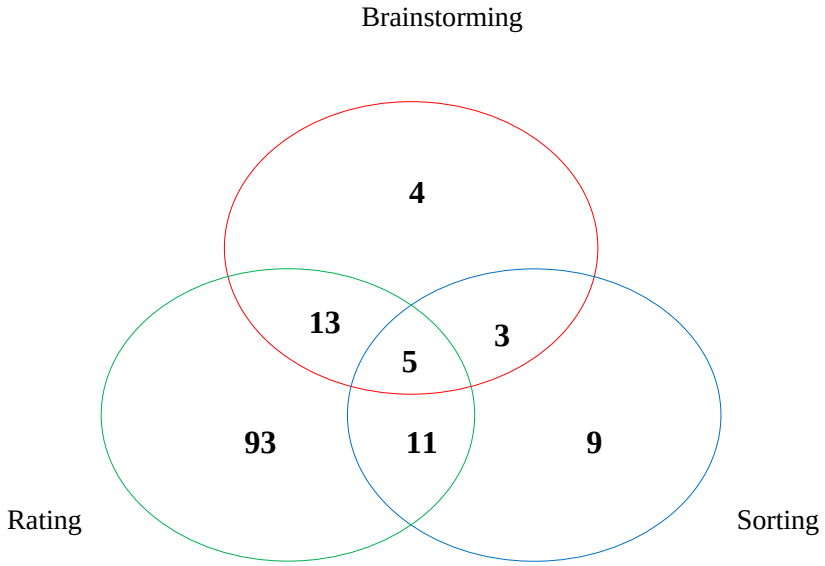

Figure 3.1 Study sample overlap for each phase of data collection

As described in this chapter, the CM data collection activities are sequential and non-recursive. As shown in Figure 3.1, and by virtue of the fact that it was the

[14] Of the 122 respondents, 122 completed the importance rating; 118 completed the feasibility rating.

first data collection task, brainstorming is shown to have complete sampling independence (i.e. 100 percent). The sorting task had sampling independence of approximately 71 percent (i.e. 20/28), excluding overlap with rating due to sequencing of the tasks. The rating task had sampling independence of approximately 76 percent (i.e. 93/122). Thus the samples for each of the CM data collection tasks constituted a mix of independent and dependent samples (personal communication with Constas, 2010), with varying levels of re-participation across participant types (i.e. alumni, board member, alumni and board member). It should be pointed out that the potential effects of having a mix of dependent and independent samples (with levels of independence observed at 100, 71, and 76 percent) were not investigated.

In summary, it is important to note that CM does not require a representative sample[15] (Kane & Trochim, 2007). Rather, the goal was to recruit participants that were knowledgeable about the outcomes of participation in the LEADNY program. As opposed to survey research, where the goal is to obtain a sample that is representative of some larger population, CM uses sampling techniques that are similar to those used for focus groups, where the objective is to obtain a diverse sample with a breadth of knowledge and ideas.

Study participants. All available alumni (N = 333) were invited via letter and e-mail to participate in one of three brainstorming sessions - strategically located in western (Pavilion), central (Auburn), and eastern (Albany) New York - from July 14 – 16, 2009. Six alumni participated in each of the brainstorming sessions. Together with a group of seven field test participants (as described in the procedure below), a total of 25 alumni participated in the brainstorming process (See Table 3.1 for a summary).

[15] It should be emphasized that a probabilistic sampling technique was not employed in this study, and conclusions drawn should therefore be limited to the participants in this study (Patton, 1999). However, the "study participants" sub-section suggests that study participants were similar in most characteristics (e.g. gender, employment) to the overall alumni population.

Table 3.1 Demographic summary of brainstorming participants

Location	Primary Type of Employment[16]			Gender		Cohorts Represented
	Producer	Agri-business	Other	Male	Female	
Ithaca (*n*=7)			7	1	6	7, 9, 10, 10, 10, 11, 12
Pavilion (*n*=6)	3	1	2	4	2	3, 3, 3, 9, 11, 11
Auburn (*n*=6)	1	1	4	5	1	2, 6, 11, 11, 11, 11
Albany (*n*=6)	1	2	3	1	5	3, 5, 7, 8, 12, 12
Total (*n*=25)	5 (20%)	4 (16%)	16 (64%)	11 (44%)	14 (56%)	2 (*n*=1, 4%) 3 (*n*=4, 16%) 5 (*n*=1, 4%) 6 (*n*=1, 4%) 7 (*n*=2, 8%) 8 (*n*=1, 4%) 9 (*n*=2, 8%) 10 (n=3, 12%) 11 (n=7, 28%) 12 (n=3, 12%)

Though Table 3.1 suggests that some employment groups (i.e. producer and agri-business) were under-represented in the brainstorming process, realize that all of the field test participants were Cornell University (i.e. "Other") employees. Producers and Agri-business employees were actually relatively well-represented in the other three brainstorming sessions. Table 3.1 also suggests that cohorts one through nine may be under-represented as compared to cohorts 10 through 12. However, it is reasonable to expect that members of earlier cohorts are more likely to have moved,

[16] LEADNY participants are generally categorized in one of three employment groups: *producers* (i.e. "farmers"), for-profit *agribusiness* professionals (e.g. private business or cooperative management staff), and *others*, which would include not-for-profit organization employees, industry or special interest group staff, educators, and government agency representatives. Some forms of diversity, including functional background (or professional) diversity have been shown to improve both team and individual leader effectiveness (Balkundi & Kilduff, 2006; Granovetter, 1973; Ibarra, 1995; Reagans & Zuckerman, 2001). Type of employment (along with other conventional demographic variables) is therefore thought to be a salient factor for subgroup analysis of sorting data.

retired, not updated their contact information or otherwise have a diminishing connection to the program.

Board members were involved primarily in the sorting and interpretation steps, but several board members (themselves program alumni) also participated in the brainstorming and rating activities. Approximately two-thirds (n = 11) of the current board members are also LEADNY alumni, and one-third (n = 7) are not. Twelve board members completed the sorting process at their September 15, 2009 meeting, and one additional board member completed the sorting at a later date. In an effort to increase the number of sorting participants, 19 Ithaca-area alumni were invited via e-mail to participate in a separate sorting activity, of which five took part. Thirty-nine Albany-area alumni were invited via e-mail to participate in the board sorting activity, of which four took part. Thirty-two Batavia-area alumni were invited via e-mail to participate in a final, separate sorting activity, of which six took part (plus the additional board member mentioned above). In summary, the 18 member board and 90 additional alumni were invited to participate in the sorting process. Of this group, a total of 28 individuals (13 board members and 15 other alumni) completed the sorting activity, for a response rate of 26 percent. (The sorting process is described in greater detail below.) Table 3.2 provides a summary of the sorting participants.

Table 3.2 Demographic summary of sorting participants

Group	Primary Type of Employment			Gender		Cohorts Represented
	Producer	Agri-business	Other	Male	Female	
Board	2	4	7	8	5	3, 5, 6, 7, 8, 10, 11, 12 (5 non-alums)
Alumni (non-board)	5	3	7	9	6	1, 1, 2, 3, 3, 7, 7, 9, 9, 10, 10, 10, 11, 12, 12
Total	7 (25%)	7 (25%)	14 (50%)	17 (61%)	11 (39%)	

All available alumni (N = 333) were invited to participate in the rating process, of which 122 (36.6 percent) completed the importance rating, and 118 (35.4 percent) completed the feasibility rating. Collection of conventional demographic data (e.g. gender, age, educational level) and data specific to an individual's participation the LEADNY program (i.e. cohort number) and type of employment facilitated subgroup analysis of rating data. This also helped ensure that no demographic group (e.g. producers) was under-represented in the rating phase of this project. Kaplowitz, Hadlock, and Levine (2004) examined the response rates to various combinations of communication method (e.g. letter, postcard, e-mail) and administration method (i.e. paper-and-pencil vs. web-based) of surveys, and found typical response rates to range between 20.7 percent and 31.5 percent. The response rate for this (rating) phase of the study – 36.6 percent - was deemed adequate.

At this point, rather than provide a demographic summary of rating participants alone, a demographic summary of *all* study participants (i.e. those that brainstormed, sorted, and rated) is provided. This approach is adopted because there was considerable overlap between those participants that completed brainstorming, sorting, and rating activities. Table 3.3 provides a summary of participants by task.

Table 3.3 Participant type by task

Task(s):	Sub-total by Participant Type			Total by task
	Board member (non-alumnus)	Board member and alumnus	Alumnus only	
a. Brainstorming only	0	0	4	4
b. Sorting only	5	0	4	9
c. Rating only	0	0	93	93
d. Brainstorming and Sorting	0	2	1	3
e. Brainstorming and Rating	0	0	13	13
f. Sorting and Rating	0	3	8	11
g. Brainstorming, Sorting, and Rating	0	3	2	5
Brainstorming sub-total (a+d+e+g)	*0*	*5*	*20*	*25*
Sorting sub-total (b+d+f+g)	*5*	*8*	*15*	*28*
Rating sub-total (c+e+f+g)	*0*	*6*	*116*	*122*
Total	5	8	125	138

As Table 3.3 shows, for example, of the 25 *alumni* that participated in the brainstorming process (see brainstorming sub-total row), 18 also completed the rating process (rows e and g). Furthermore, of the 23 alumni that completed the sorting process (sorting sub-total row minus the five sorters that were non-alumnus board members), 16 also completed the rating process (rows f and g). Figure 3.1 (above) also depicts this participant overlap across tasks, though it does not differentiate by type of participant (i.e. non-alumnus board member, alumnus and board member, or alumnus only). A total of 138 different individuals (not including the researcher) participated in one or more phases of this project (brainstorming, sorting, or rating). Summaries of each of the demographic characteristics of this total sample follow.

Ninety (65 percent) of the respondents were male, and 48 (35 percent) were female. In the total alumni population (N = 344), 245 (71 percent) are male, and 99

(29 percent) are female, so with respect to gender the respondent group is not very different than the population from which they were drawn.

Ages of respondents ranged from 29 to 69 years, and the average age of all respondents was 49.25 years (four participants did not respond to this question). Age at completion of the program ranged from 27 to 65 years, and the average age at program completion was 39.75 years (this question did not apply to the five non-alumni board respondents, and five alumni did not respond to this question). Historically, the program did not track age of applicants or age at completion, so no average age statistic could be calculated for the overall population.

Most respondents were college graduates (associate, baccalaureate, or master's degrees), and relatively few had not earned a college degree or earned a doctoral degree. Historically, the program did not track the degree status of participants, so no educational summary statistic could be calculated for the overall population. A summary of study participants' education status is provided in Table 3.4.

Table 3.4 Participant summary by education level

Degree	Number	Percent
HS/GED	1	0.72
Some college, no degree	13	9.42
2-year degree (e.g. A.A., A.A.S.)	11	7.97
4-year degree (e.g. B.A., B.S.)	58	42.03
Some graduate coursework, no degree	13	9.42
Master's degree (e.g. M.A., M.S.)	40	28.99
Doctoral degree (e.g. PhD., DVM, EdD)	1	0.72
Did not respond	1	0.72
Total	138	100.00

All cohorts (N = 12) were represented in the participant population. Predictably, latter cohorts (i.e. classes 10, 11, and 12) had higher participation rates, presumably because these alumni have a more recent connection to the program, and perhaps because the contact information on file was more accurate. Five non-alumnus

board members also participated in the study. Table 3.5 provides a summary of participants by cohort number.

Table 3.5 Participant summary by cohort number

Cohort	1	2	3	4	5	6	7	8	9	10	11	12	Board (non-alum)	Total
Number	12	9	11	4	7	8	10	7	8	17	18	22	5	138
Percent	8.7	6.5	8.0	2.9	5.1	5.8	7.3	5.1	5.8	12.3	13.0	15.9	3.6	100.0

Historically, the LEADNY program has had a goal of having 50 percent of each cohort represented by producers, and the remaining 50 percent consist of non-producers (i.e. agribusiness and other employees). However, the reality is that most cohorts have consisted of roughly one-third producers, one-third for-profit agribusiness employees, and one-third from the other employment categories. Because cohort members frequently change employment from one category to another (e.g. moving from a career in education to the for-profit sector), and still other individuals fall into more than one category of employment simultaneously (e.g. a farmer that also has an off-farm job in the for-profit sector), it is exceedingly difficult to calculate a summary statistic on employment for the entire alumni population. Study participants were asked to identify their *primary* occupation, and Table 3.6 provides a summary.

Table 3.6 Participant summary by primary employment

Primary employment	Number	Percent
Production agriculture (i.e. farming)	37	26.81
For-profit agribusiness	42	30.43
Other (e.g. not-for-profit, government agency, education)	59	42.75
Total	138	100.00

Thirteen board members participated in a preliminary interpretation of the results at the January 6, 2010 board of directors meeting (process described below). Of the board members that participated in the interpretation session, 10 (77 percent) were male and three (23 percent) were female. Nine (69 percent) were program alumni, and four (31 percent) were non-alumni. Five (38 percent) were producers, four (31

percent) were from the agribusiness sector, and four (31 percent) represented the "other" employment category (i.e. not-for-profit, government agency and educational sectors). A more thorough discussion of the utilization of study findings will be performed at a future meeting of the board (September 2010).

Focus for brainstorming. Identifying program outcomes[17] and developing a rich, accurate description of program theory was a principal aim of this study. This study also sought to identify outcomes at multiple levels of analysis (e.g. individual, dyad, group, organizational and industry-wide) and temporal horizons (i.e. short, intermediate and long term). Brainstorming participants were therefore instructed to think broadly about outcomes of participation in LDPs. Participants were asked to think not only of positive outcomes (i.e. benefits) of participation, but also negative outcomes (i.e. drawbacks); hence the term "consequences" (a neutral term) was utilized in the focus prompt. Participants were asked to think of outcomes across broad temporal horizons (i.e. short, intermediate and long-term) and to consider outcomes at multiple levels (i.e. individual, dyad, group, organizational and industry-wide). Finally, because the LDP used for this case research (LEADNY) may not address all of the outcomes typically associated with participation in an otherwise similar LDP, participants were asked to consider outcomes of participation in any high-quality LDP that they may be familiar with. The focus prompt that was utilized for the brainstorming process was:

"One specific consequence of participation in a high-quality leadership development program is…"

[17] For the sake of simplicity, the term "outcomes" is used, but is understood here to encompass outputs, outcomes, and impacts. These are differentiated as follows (adapted from Russon & Reinelt, 2004): *Outputs* are considered to be short term (zero to three years) results of participation, usually at the individual level of analysis. *Outcomes* are intermediate term (three to five years), and may be individual, dyad, group or organizational in nature. *Impacts* are considered to be long term (five or more years) results, and while they may be individual in nature, are more often than not considered to be team, organizational or industry level results that are realized or sustained many years after the intervention.

Focus for rating. Once the list of brainstormed statements was edited and reduced to a final statement set (see description of reduction process in following section), participants in the rating process were asked to rate each statement on two scales. First, participants were asked how important (on a scale of one equals "relatively unimportant" to five equals "extremely important") various program outcomes are to them. The second rating scale asked participants to rate how much they believe each outcome is likely to be affected by the program, where one equals relatively unlikely and five equals highly likely. This second rating scale serves as an indicator of the feasibility of the program to achieve certain expected outcomes. Rating statements in these two dimensions allows for the generation of "Go-Zone" plots (discussed in the results chapter).

Generation of Statements

Typically in concept mapping, issue data is collected in stakeholder meetings. During the generation step, participants generate statements using a brainstorming process guided by a specific focus prompt that limits the types of statements that are acceptable. The focus statement or criterion for generating statements is operationalized as a focus prompt that guides the participants in the brainstorming. The general rules of brainstorming apply. Participants are encouraged to generate as many statements as possible. Participants do not challenge or question the statements of others, though they may offer suggestions to improve the clarity of the statement.

The focus prompt and brainstorming approach (described above) was field tested in Ithaca, NY with a group of seven LEADNY alumni on June 15, 2009. As a result of that field test, minor revisions were made to the invitation letter that was sent to all LEADNY alumni (see copy in Appendix B). Because no revisions were made to the instructions or focus prompt as a result of the field test, and because all of the field test participants were also eligible to participate in the brainstorming process, the 35

statements generated by the field test group were retained in the overall brainstorming statement set.

Because LEADNY alumni are geographically dispersed, brainstorming sessions took place in three locations during July of 2009. Each of the sessions was conducted in an identical manner, and each lasted approximately two hours. First, a brief overview of the research study and concept mapping was provided. Next, the informed consent forms were distributed, reviewed, signed and collected (there were no questions or concerns raised by any participant regarding informed consent). In an effort to encourage participants to think broadly about the outcomes of participation in a LDP, the following guidelines were provided and discussed:

a. General rules of brainstorming apply (try to generate as many ideas as possible)
b. Think beyond LEADNY to other high-quality LDPs you may be familiar with
c. Think broadly about the level of impact; beyond just individual-level benefits (e.g. group, organization or community benefits)
d. Think broadly about when outcomes are realized; short-, intermediate- or long-term?
e. Think beyond just positive outcomes (i.e. benefits); are there drawbacks also?
f. Try to make statements as specific as possible

After these guidelines were discussed, each participant was given a statement generation form (Appendix C). The focus prompt was reviewed to make sure that each participant understood its meaning and what they were being asked to do. Participants were then given approximately 10 minutes to quietly write down as many statements as they could think of on their own. Following this 10-minute quiet writing activity, each participant was asked to read one of their statements, and the researcher recorded the statement in a word processing document, which was projected on a screen for all

to see. This verbal sharing of statements was intended to stimulate further thinking and encourage the generation of additional statements. This verbal exercise continued until all statements from each participant had been shared with the group and recorded. Finally, each participant's completed statement generation form was collected and reviewed (after the conclusion of the group brainstorming session) to ensure that no statements were missed (in the event that a participant may have been unwilling to verbally share a negative outcome of their participation in the program). No statements were found on the written statement generation forms that had not been shared verbally during the brainstorming sessions.

Statement synthesis. Following the field test and three subsequent brainstorming sessions, all statements were compiled and edited for clarity and grammar (but *not* for content), assuring that the statements were all syntactically "of a kind." The comprehensive list of brainstormed statements (N = 296) can be found in Appendix D. The Concept System© software allows the sorting and rating of up to 125 statements, and sorting much more than 100 statements can become cumbersome (Kane & Trochim, 2009). The researcher therefore reduced this statement set to a more manageable number (n = 117) for sorting using a manual form of text abstraction similar to a computer-aided Keywords in Context (KWIC) approach (Krippendorf, 2004 as cited in Kane & Trochim, 2009). Duplicate (i.e. identical) statements were eliminated. The remaining statements were then examined (manually) for similar keywords (e.g. "confidence" or "communication"). Statements containing similar keywords were then analyzed for meaning, and statements with similar meaning were combined to form new statements. For example, statement 71 ("developing more confidence addressing groups of people in a public setting") and statement 232 ("improved confidence in both written and oral communications") were combined to form the new, final statement 48 ("developing increased confidence in communicating

with people"). The rules used in this editing process, as well as the key to identifying which statements were combined, can be found in Appendix E.

Seven statements were eliminated from the original statement set. These statements were either not related to this research or did not fit the focus prompt (i.e. they did not address a specific outcome of participation). For example, statement 226 ("learning from role-playing") identified a specific pedagogical method used in the LDP (i.e. *how* the participant learned), but did not identify an outcome of participation (e.g. an improved leadership behavior). These statements, along with the justification for their elimination, are presented in Appendix F.

The final list of statements (n = 117) used for sorting and rating are presented in Appendix G. As an additional check on the coverage of this final statement set, it was compared to a list of program outcomes (Appendix H) generated by the board as part of a program strategic plan in January 2008 (LEAD New York, n.d.). Each of the outcomes identified by the board was addressed by at least one of the statements in the final statement set, serving as an indicator of adequate coverage of program outcomes by the final statement set.

Structuring of Statements

Sorting. Sorting of the statements was done by board members and alumni (see demographic description of participants in preceding section) at three separate meetings conducted in September and October 2009. Because sorting a large number of statements via a web-based instrument can be cumbersome, and because the researcher wanted to give participants the opportunity to ask clarifying questions about the process, the decision was made to conduct the sorting process via a paper-and-pencil instrument in face-to-face meetings (as opposed to on-line).

In most concept mapping projects, it is desirable to have at least 25 – 30 participants sort the statement set (personal communication with Trochim, 2009). The

LEADNY board consisted of only 18 members, and attendance at board meetings was rarely 100 percent. Therefore, alumni in the Ithaca area were invited to participate in a sorting focus group meeting on September 2, 2009, and five alumni participated. (This initial sorting meeting also served as a field test of the sorting process, and no changes were made as a result of this field test.) Alumni in the Albany area were invited to join the board meeting on September 15, 2009, and four non-board alumni participated. Following these two sorting sessions, it became apparent that producers were under-represented in the sorting process, so an additional sorting session was held in Batavia, NY (the area of the state with a dense population of LEADNY alumni that are producers) on Tuesday, October 27, 2009, and six additional alumni (five producers) participated.

Each of the sorting meetings were conducted in an identical manner, and each lasted approximately 90 minutes. For the sorting (Rosenberg & Kim, 1975; Weller & Romney, 1988), each participant groups the statements into groups in a way that makes sense to them; i.e. conceptually similar statements are grouped together. The only restrictions in this sorting task are that there cannot be: a) *N* groups (every group having one item each); b) one group consisting of all items; or c) a "miscellaneous" group (any item thought to be unique is to be put in its own separate pile). Participants were given these instructions, and any questions about the process were answered. Each participant was then given a set of cards, each card having one statement and the identifying statement number on it. They were asked to spread out in the room, and work individually (i.e. not confer with another participant). Once they had finished sorting the cards into piles, each participant was asked to record their sort data on a sort recording sheet (Appendix I) and to suggest a title for each pile of of sorted statements. The sort recording sheets were collected, and statement numbers were counted to ensure that all 117 statements had been sorted and recorded. Participants

were then dismissed, and their data was entered into the Concept System by the researcher.

Rating. All available LEADNY alumni (N = 333) were invited to participate in the rating process. A four-step communication method (Salant & Dillman, 1994) was used to maximize response rates. This included an advance letter (Appendix J), followed by a second letter (Appendix K) with instructions for completing the rating process (via paper-and-pencil or web-based instrument), followed by a reminder postcard (Appendix L), followed by a telephone call or e-mail (Appendix M) reminder for those that had still not responded.

For the rating task, each participant rates each statement on two, five-point Likert-type response scales: "outcome importance" and "likelihood of accomplishment" (a proxy for feasibility). A copy of the rating recording sheet is provided in Appendix N. Because the statements originated from the reflective evaluation comments of alumni, it was unlikely that these statements were totally unimportant with respect to the focus. Therefore, it was stressed that the importance rating should be considered a *relative* judgment of the importance of each item to all the other items brainstormed. The specific rating variables on the importance scale were as follows:

1 = Relatively unimportant (compared to the other outcomes)

2 = Somewhat important

3 = Average importance

4 = Somewhat more important

5 = Extremely important (compared to the other outcomes)

In addition, participants were asked to rate how likely it is that each of the statements (i.e. program outcomes) were affected by the program. Again, a five-point Likert-type scale was used, where:

1 = highly *un*likely compared to the other outcomes

2 = somewhat unlikely

3 = likely

4 = more likely

5 = highly likely compared to the other outcomes

Ninety-six participants completed the rating activity via the web-based instrument, and 26 chose to complete it via the paper-and-pencil instrument that was provided with the second mailing. In those latter cases, the researcher entered the participant data into the Concept System as it was received. No problems (e.g. inability to access the web-based instrument) were reported by any alumni, suggesting that technical difficulties did not limit participation. In total, 122 participants completed the importance rating, and 118 completed the feasibility rating.

Representation of Statements

An initial interpretation of results was conducted by the researcher in November 2009. This section describes the basic data analyses that were conducted in preparation for the interpretation session with the board. A more detailed analysis (and more thorough discussion of the analysis) will be provided in the following chapter. Computations for the concept mapping analysis were handled automatically by the Concept System program. Examples of results of several concept mapping projects are given in Trochim (1989b).

Create similarity matrix. After all data was entered into the Concept System program, analysis began with construction from the sort information of an NxN binary, symmetric matrix of similarities, X_{ij}. For any two items i and j, a one was placed in X_{ij} if the two items were placed in the same pile by the participant, otherwise a zero was entered (Weller & Romney, 1988, p. 22). The total NxN similarity matrix, T_{ij} was obtained by summing across the individual X_{ij} matrices.

Thus, any cell in this matrix could take integer values between zero and the number of people who sorted the statements (n = 28). The value indicates the number of people who placed the i,j pair in the same pile.

Multidimensional scaling. The total similarity matrix T_{ij} was analyzed using non-metric multidimensional scaling (MDS) analysis with a two-dimensional solution. The solution was limited to two dimensions because, as Kruskal and Wish (1978) point out:

> Since it is generally easier to work with two-dimensional configurations than with those involving more dimensions, ease of use considerations are also important for decisions about dimensionality. For example, when an MDS configuration is desired primarily as the foundation on which to display clustering results, then a two-dimensional configuration is far more useful than one involving three or more dimensions (p. 58).

The analysis yields a two-dimensional (x,y) configuration of the set of statements based on the criterion that statements piled together most often are located more proximately in two-dimensional space while those piled together less frequently are further apart. Figure 3.2 shows the MDS configuration of the statement points (i.e. "point map") which was graphed in two dimensions automatically by the Concept System program.

Figure 3.2 MDS configuration of statement points (*n* = 117)

The key diagnostic statistic in MDS is the "stress" indicator (Kruskal & Wish, 1978). This statistic serves as an indicator of how well the two-dimensional picture of statement points represents the original total similarity matrix. Based on meta-analytic studies across a broad range of concept mapping projects (Trochim, 1993) approximately 95 percent of concept mapping projects are likely to yield stress values that range between 0.205 and 0.365 (M = 0.285, SD = 0.04) (Kane & Trochim, 2007). Stress for this map was .3176, and is considered acceptable for this type of project.

Hierarchical cluster analysis. The x,y configuration was the input for the hierarchical cluster analysis utilizing Ward's algorithm (Everitt, 1980) as the basis for defining a cluster. Using the MDS configuration as input to the cluster analysis in effect forces the cluster analysis to partition the MDS configuration into non-overlapping clusters in two-dimensional space. There is no simple mathematical criterion by which a final number of clusters can be selected. The procedure that is

typically followed (Kane & Trochim, 2007) is to examine an initial cluster solution that is the maximum desirable (e.g. n = 20) for interpretation in this context. Then, successively lower cluster solutions are examined, with a judgment made at each level about whether the merger seems substantively reasonable. The researcher used a "Selecting the Number of Clusters Worksheet" (Appendix O) to accomplish this task. The pattern of judgments of the suitability of different cluster solutions is examined and the final number of clusters selected to preserve the most detail and still yield substantively interpretable clusters of statements. For this project, the researcher determined that an eight cluster solution yielded sufficient specificity in the data while providing interpretable results for easy use by the board. As a check on this judgment, an expert at Concept Systems was asked to review this decision making process, and they concurred that an eight cluster solution seemed best for this data set. A "cluster map" for the eight cluster solution was then generated which displayed the original statement points enclosed by polygon-shaped boundaries for the clusters.

The one-to-five importance and feasibility rating data were averaged across persons for each item and each cluster. This rating information was depicted graphically in a "point rating map" showing the original point map with the average rating per item displayed as vertical columns in the third dimension and, in a "cluster rating map" that showed the cluster average rating using the third dimension (i.e. layers in the cluster map).

Interpretation of the Concept Maps

The meeting to review and interpret results with board members was conducted on January 6, 2010. All of the graphics were created interactively by the Concept System and projected onto a screen for participants to see. The following materials were available for use in the session:

(1) list of the brainstormed statements grouped by cluster (Appendix P)

(2) point map showing the MDS placement of the brainstormed statements and their identifying numbers (Figure 3.2 above)

(3) cluster map showing the cluster solution

(4) point rating maps showing the MDS placement of the brainstormed statements and their identifying numbers, with average statement ratings overlaid

(5) cluster rating maps showing the final cluster solution, with average cluster ratings

This interpretation session followed a structured process described in detail in Trochim (1989a). The researcher began the session by giving the participants the listing of clustered statements (Appendix P) and reminding them of the statement generation, sorting, and rating tasks performed earlier. Each participant was asked to read silently through the set of statements in each cluster and generate a short phrase or word to describe or label the set of statements as a cluster. The researcher then led the group in a discussion working cluster-by-cluster to achieve group consensus on an acceptable label for each cluster. In most cases, when persons suggested a label for a specific cluster, the group readily came to a consensus. Where the group had difficulty achieving a consensus, the researcher suggested hybrid names that combined key terms or phrases from several individuals' labels.

Once the clusters were labeled, the group was shown the point map (Figure 3.1) and told that the analysis placed the statements on the map so that statements frequently sorted together were generally closer to each other on the map than statements infrequently sorted together. To reinforce the notion that the analysis placed the statements sensibly, participants were taken on a “tour” of the map by the researcher who identified statements in various places on the map and examined the contents of those statements. After becoming familiar with the numbered point map,

the participants were told that the analysis also organized the points (i.e. statements) into groups as shown on the list of clustered statements they had already labeled. The cluster map (Figure 3.3) was projected and participants told that it was simply a visual portrayal of the cluster list.

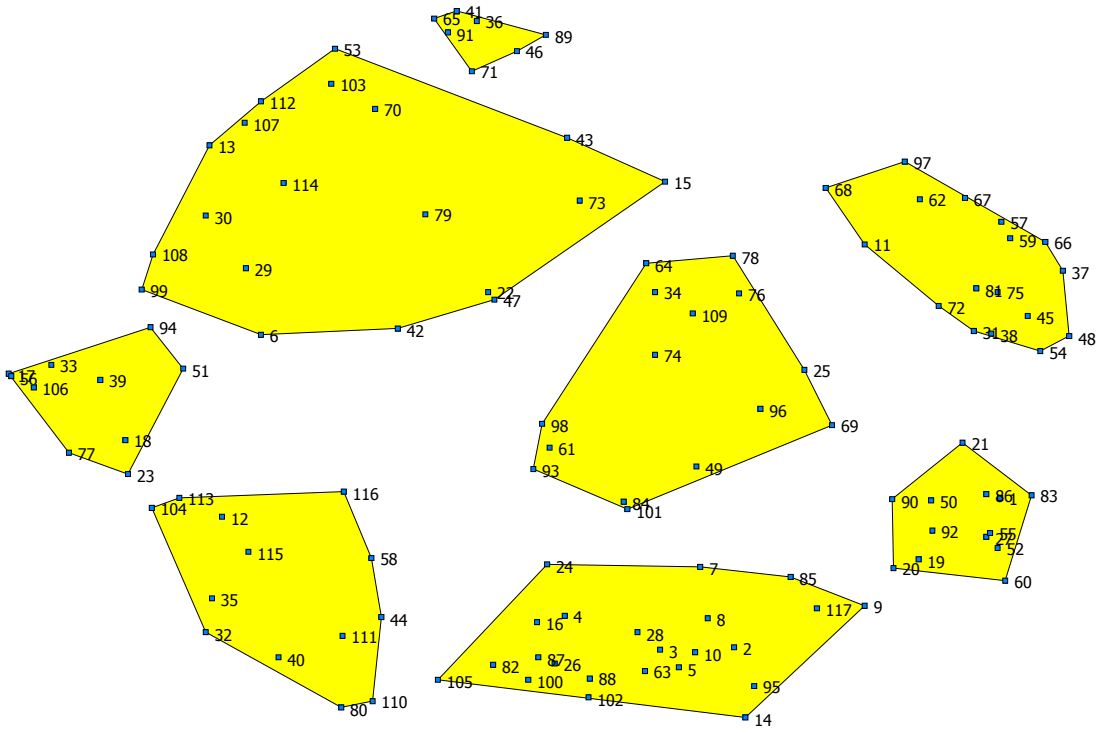

Figure 3.3 Cluster map for an eight cluster solution

Participants examined this labeled cluster map to see whether it made sense to them. The researcher reminded them that in general, clusters closer together on the map should be conceptually more similar than clusters farther apart and asked them to assess whether that seemed to be true or not. Participants were asked to think of a geographic map, and "took a trip" across the map reading each cluster in turn to see whether or not the visual structure seemed sensible

The researcher noted that all of the material presented to this point used only the sorting data. The results of the rating task were then presented through the point rating (Figure 3.4) and cluster rating (Figure 3.5) maps. It was explained that the

height of a point or cluster represented the average rating for that statement or cluster of statements. Again, participants were encouraged to examine these maps to determine whether they made intuitive sense and to discuss what the maps might imply about the focus issue.

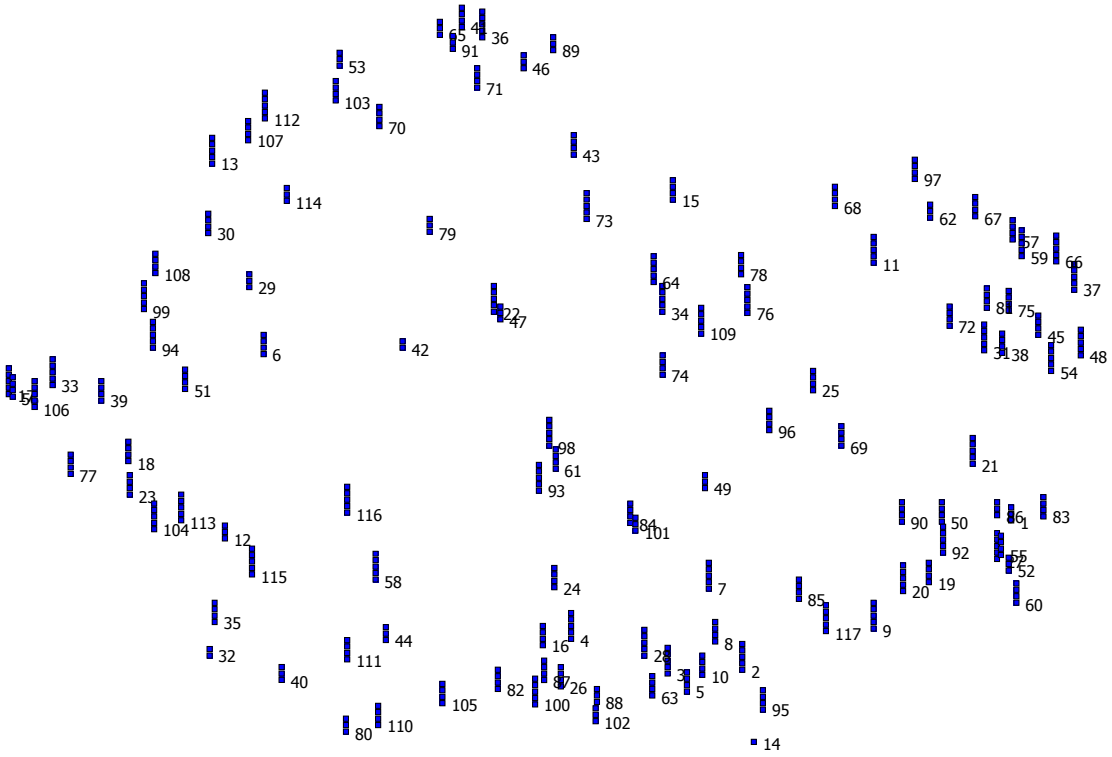

Figure 3.4 Point importance rating map

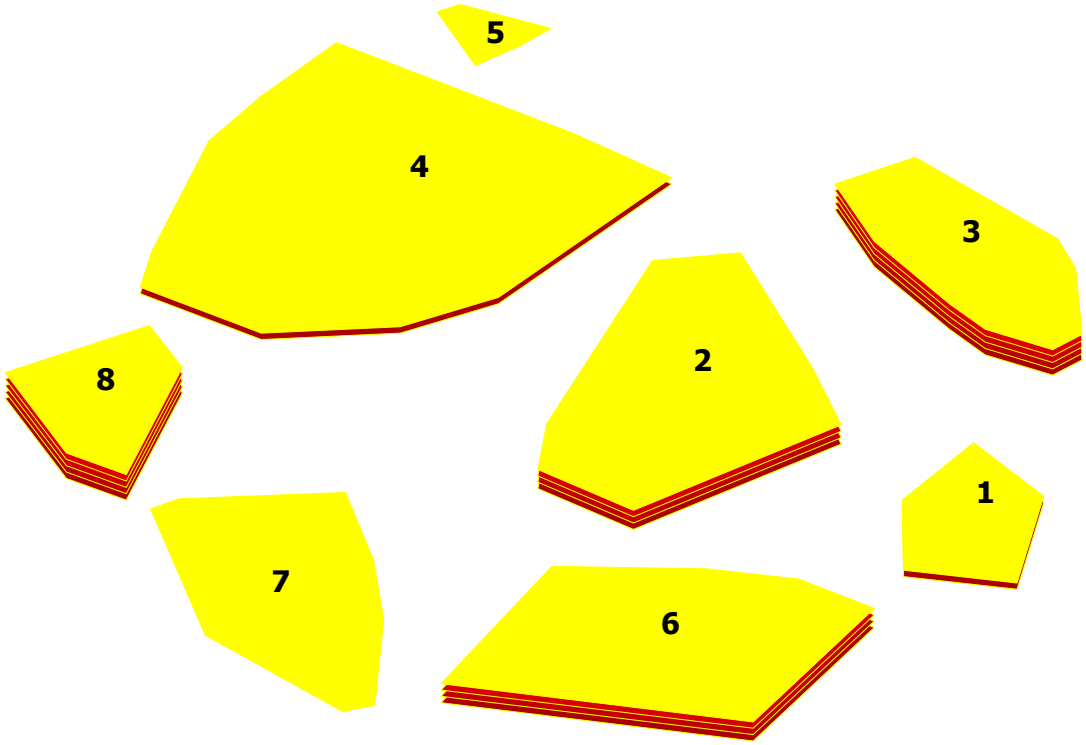

Figure 3.5 Cluster importance rating map

The researcher then led the group in a discussion and more detailed analysis of the maps. First the group looked at statements around the edges of clusters and determined if it made sense to locate them in an adjoining cluster (i.e. redraw the cluster boundaries). It should be noted that redrawing a cluster boundary does *not* change the location of a point in the map (i.e. it does not challenge the MDS coordinates of the point); it merely forces the software to draw the cluster boundaries differently in a way that makes sense to the group. The group concurred that several specific points should be located within different clusters, as summarized in Table 3.7.

Table 3.7 Statements reassigned to different clusters

From Cluster	To Cluster	Statement Numbers
1	2	21, 90
2	4	15, 22, 42, 43, 47, 73, 79
4	5	53
6	7	105
7	6	58
7	8	12, 104, 113, 115, 116

The board's reasoning for redrawing the cluster boundaries in this way will be elaborated in the results and discussion chapters of this dissertation. Figure 3.6 shows the re-drawn cluster boundaries and new cluster labels.

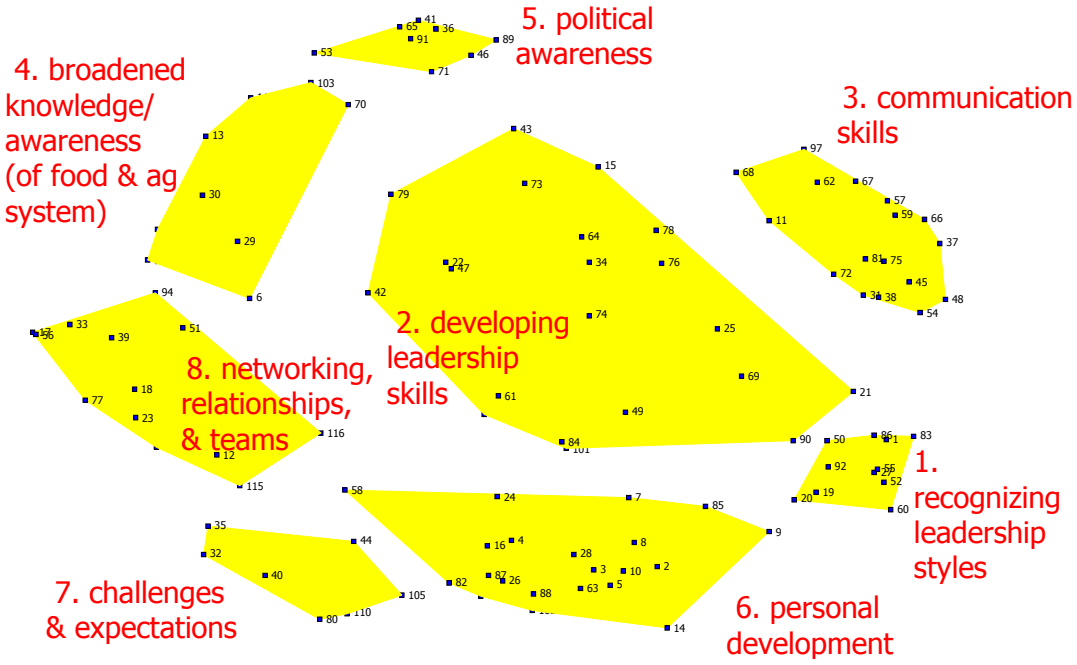

Figure 3.6 Cluster map with redrawn boundaries and labels

The group was then asked to identify any interpretable groups of clusters or "regions" (Trochim, 1989a). Participants concurred that several of the clusters could be located within three regions (knowledge/awareness, skills, and reflection) represented by the ovals as shown in Figure 3.7. Just as in labeling the clusters, the group arrived at a consensus label for each of the identified regions. This cluster analysis with re-drawn boundaries and regions identified will be referred to as the "final" cluster analysis.

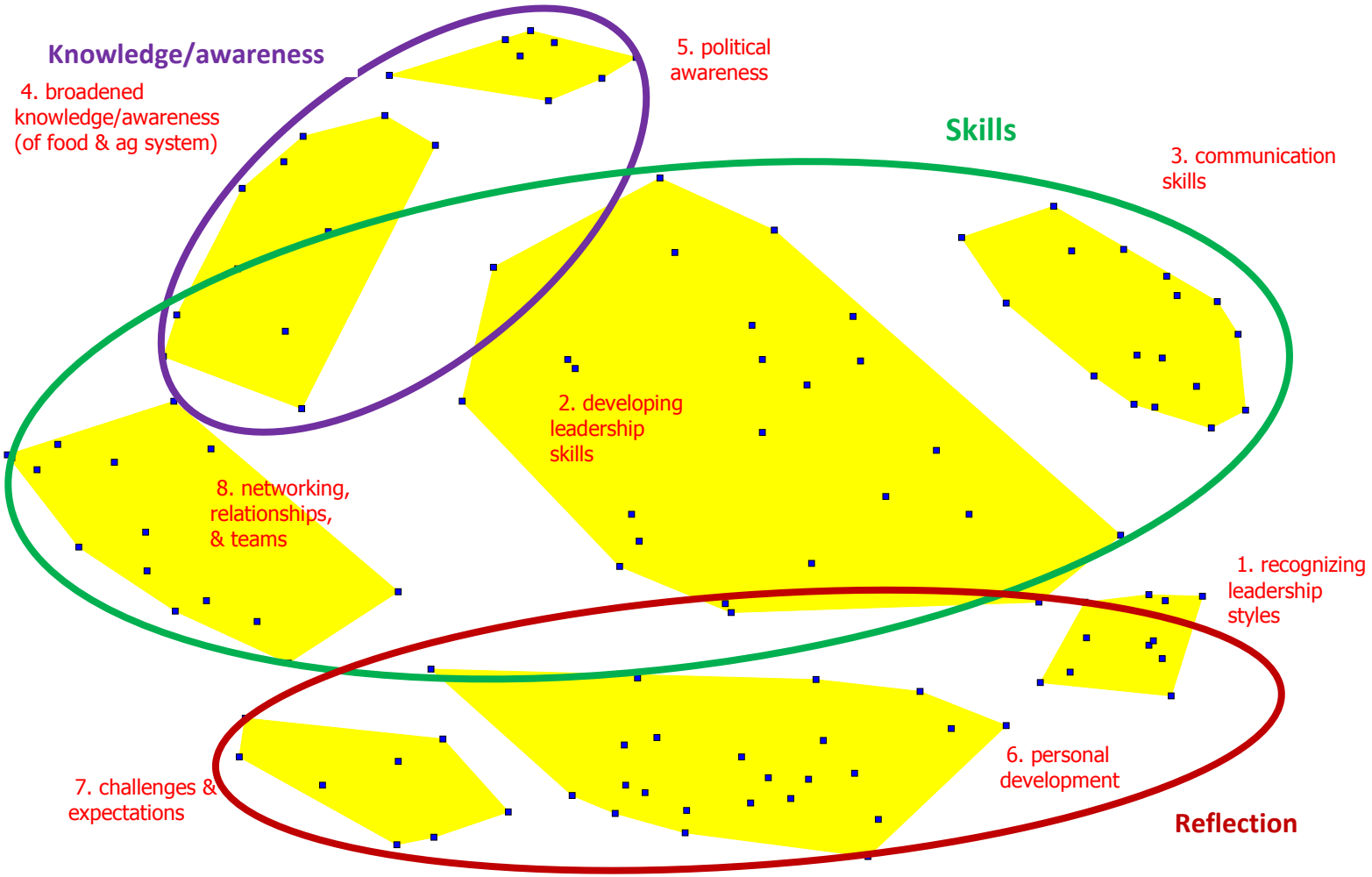

Figure 3.7 Cluster map with regions identified

Finally, this cluster map was redrawn to include the cluster by outcome importance rating, and the statements by bridging value (Figure 3.8). The group then discussed the importance ratings of each cluster to see if it made sense to them. The researcher pointed out that bridging values (represented by the vertical columns at each point location in the map) represented whether a given statement acted as a "bridge" to other statements and clusters, or if it served as an "anchor" in that cluster.

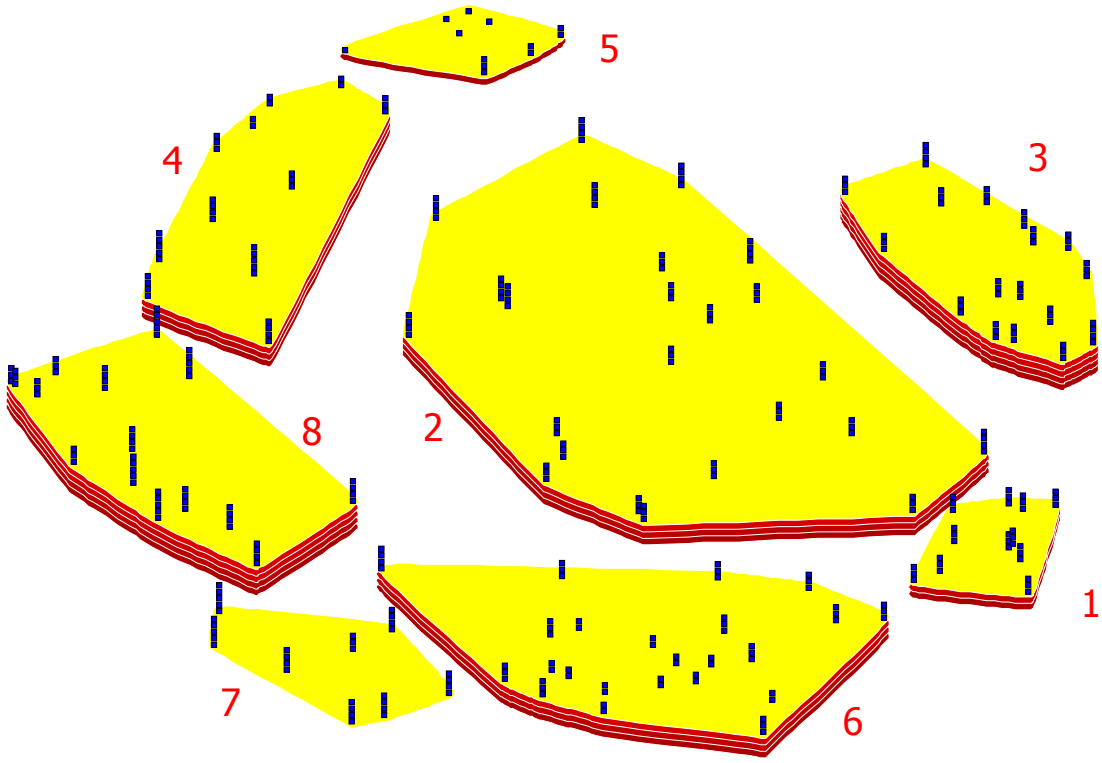

Figure 3.8 Cluster by importance with statement by bridging value

Consensus analysis. Pattern matching (Trochim, 1985, 1989c) was used for a number of purposes in this process. The most immediate use was the exploration of consensus across different stakeholders or participant groups (e.g. based on different demographic variables). Pattern matching is both a statistical and graphic analysis. Graphically, a pattern match is portrayed using a "ladder graph" that consists of two vertical axes (one for each "pattern"). The vertical axes are joined by lines that

indicate the average values for each cluster on the concept map for any variable specified. Statistically, the two patterns are compared with a Pearson product moment correlation (*r*) that is displayed at the bottom of the ladder graph. Several such pattern matches were shown to the board and discussed. A sample pattern match comparing the cluster importance rating by gender is shown in Figure 3.9.

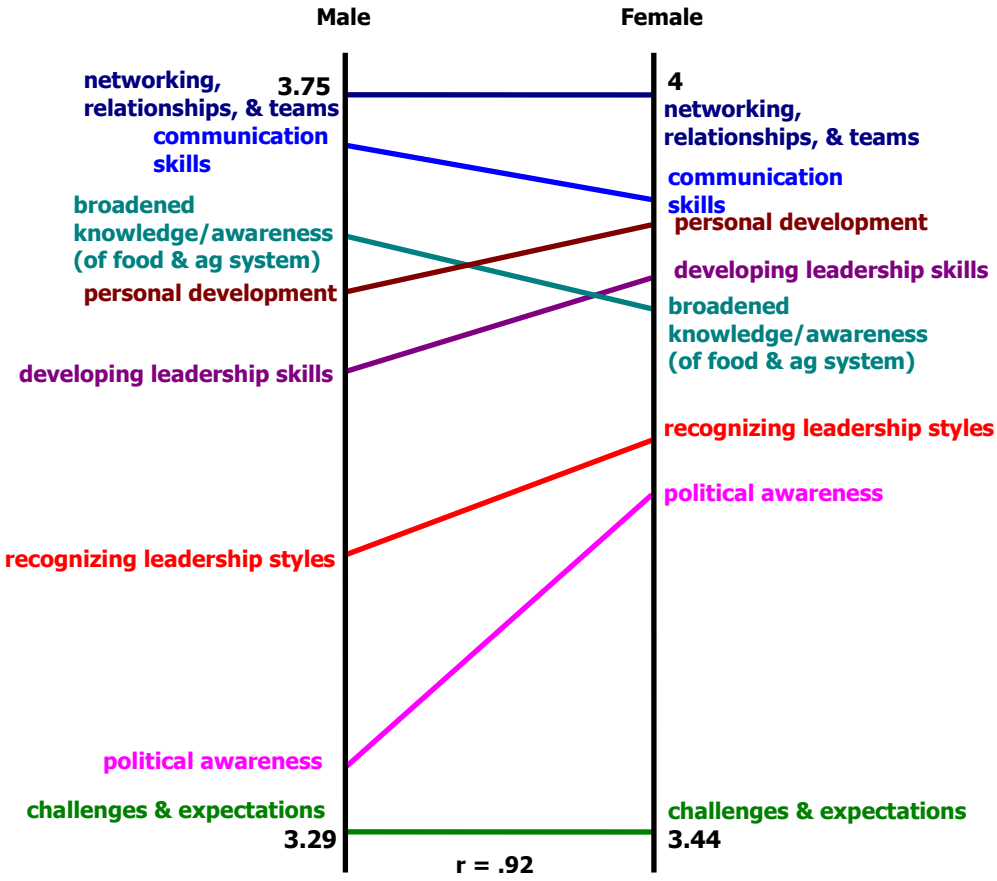

Figure 3.9 Ladder graph of cluster importance by gender

The figure is called a "ladder" graph because strong agreement between the patterns will result in a set of near horizontal lines that look a bit like a ladder. The pattern match enables immediate identification of which cluster areas show the greatest consensus or disconnection. For example, the nearly horizontal lines and strong correlation (*r* = .92) in Figure 3.8 suggests that there is strong agreement

between males and females on the importance rating of clusters. Board members explored a number of such matches to ascertain the degree of consensus that existed among stakeholders. These will be discussed further in the results and discussion chapters.

Utilization of Maps

Though utilization of the concept maps, pattern matches, and other data (e.g. "go-zone" plots) from a concept matching project is normally thought of as part of the overall concept mapping process (Kane and Trochim, 2007; Trochim, 1989a), a thorough discussion of the utility of this research (i.e. for program planning, evaluation, and construct development) will be reserved for the discussion chapter of this dissertation. The board will participate in a utilization discussion during a future (September 2010) meeting, where the primary focus will be on using this research for program planning and implementation (including program revisions).

This chapter presented a detailed review of the participant population (i.e. sample) as well as the methods and procedures (e.g. project planning, data collection, synthesis, and preliminary data analysis) used in this study. A thorough discussion of the results of data analysis follows in the results chapter.

CHAPTER 4

RESULTS OF ANALYSES

Overview

This study resulted in the identification of 117 specific program outcomes (as perceived by program alumni), organized into eight clusters and three regions. Each cluster identifies a specific construct (Trochim, 1985; 1989b) operationalized in this specific context. Analysis of the underlying regions identifies broader conceptual domains and sheds some light on the relationships between constructs (Cronbach & Meehl, 1955). Spanning analysis (i.e. examination of statement bridging and anchoring values) identifies the relationships between both specific outcomes and clusters of outcomes (Kane & Trochim, 2007). Together, these analyses aid in the elaboration of the theoretical framework of the program in question.

Chapter Organization

The first section provides a summary of the eight clusters identified in this study, organized in descending order of importance. Three underlying regions (sometimes referred to as "clusters of clusters") are then discussed. Next, bridging values are discussed as a means to tie the various constructs together into what serves as the foundation for a theoretical framework for the program.

The second section reviews a number of pattern matches, which allows for the examination of agreement among various groups according to salient demographic characteristics (e.g. gender). Pattern matching is also discussed as a means to compare the program as intended (i.e. stated program objectives) with the program as experienced (i.e. outcomes as perceived by alumni). The third section compares importance and feasibility ratings of both individual outcomes and clusters of outcomes. Go-zone plots serve as the primary analytical tool, which are particularly useful for program planning and implementation purposes.

Cluster Analysis

The original sort data for each participant was entered into a similarity matrix (as described in the methods chapter) prior to conducting MDS. Individual sort data in this matrix was added together to create group similarity matrices based on any relevant demographic characteristic. A primary objective of the LEADNY recruitment strategy is to recruit participants from three general employment categories (i.e. producers, agribusiness, and other), and this is thought to be the most salient demographic characteristic in the study population. This analysis therefore first sought to determine if there was agreement between these three groups on the sort data (i.e. how they organized individual outcomes into clusters). Similarity matrices for these three groups were correlated (Table 4.1).

Table 4.1 Employment group sort data correlations

Employment group	Producers	Agribusiness	Other
Producers (n = 7)	-	.692**	.749**
Agribusiness (n = 7)		-	.758**
Other (n = 14)			-

** Correlation is significant at the 0.01 level (2-tailed). N = 6903[18]

All of the correlations were significant which suggests that all three groups conceptualized the statement set in a similar way. It is therefore reasonable to assume that the different number of participants in each group will not affect the results of the aggregate map as presented below. Figure 4.1 presents the final cluster solution for all users with cluster labels and individual statement points. Each layer in the cluster map represents greater relative importance of the cluster.

[18] The large number of observations being compared (N = 6903) makes it unlikely that any of the comparisons will be non-significant.

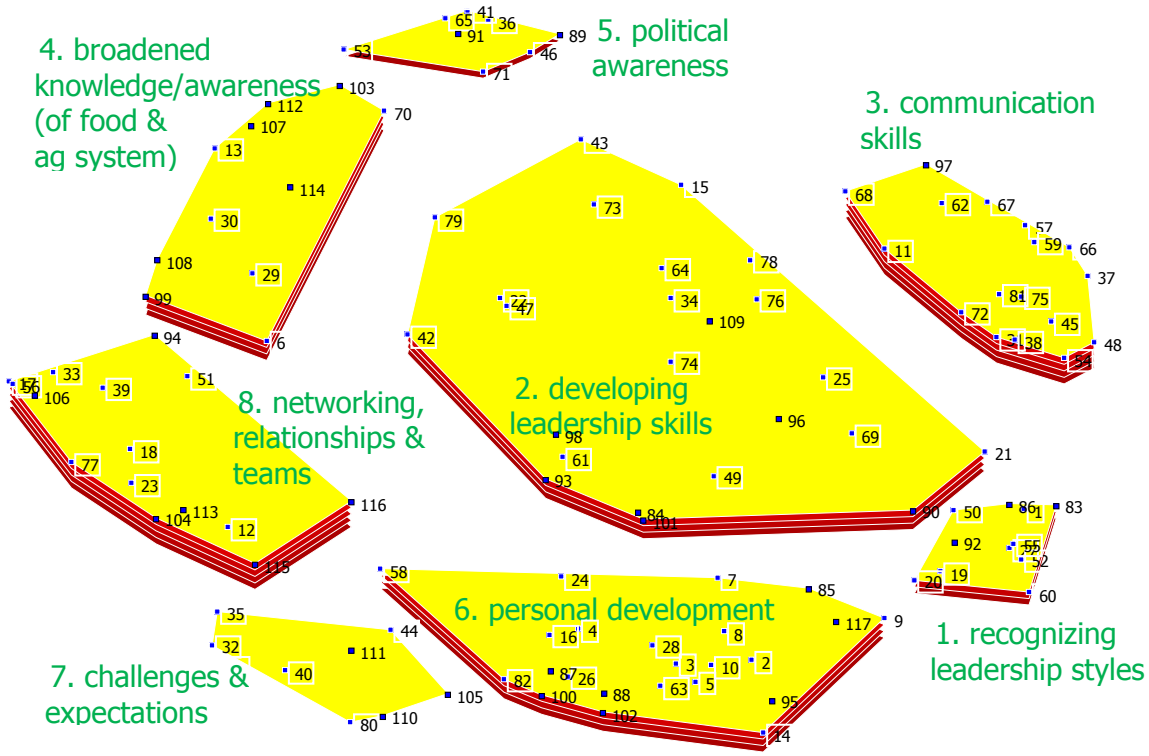

Figure 4.1 Final Cluster Rating (Importance) Analysis with Labels and Points

Table 4.2 presents the average cluster importance ratings organized in descending order of importance. Importance ratings for individual statements (organized by cluster) can be found in Appendix Q.

Table 4.2 Cluster importance ratings

Cluster	Importance		Statement
	Mean	SD	Count
8. networking, relationships & teams	3.83	0.34	15
3. communication skills	3.78	0.23	17
4. broadened knowledge/awareness	3.72	0.38	11
6. personal development	3.72	0.54	23
2. developing leadership skills	3.67	0.42	24
1. recognizing leadership styles	3.55	0.35	11
5. political awareness	3.45	0.32	8
7. challenges & expectations	3.34	0.34	8

Individual Clusters Organized by Importance

8. Networking, relationships, and teams. Cluster 8 emerged as the most important cluster (average importance rating = 3.83), and included such general

outcomes as teambuilding, improved interpersonal skills, and developing personal and professional networks. The two most important statements in this cluster (number 17 "development of a diverse network of skilled professionals [and resources] within the broader Ag industry that can be called upon at any time for assistance" and number 33 "meeting people you otherwise would not have met and development of new relationships and friendships; expanding social and professional networks") are indicative of the importance of *networking* to program participants. Class members not only develop close personal relationships with each other (often through informal, unstructured time) but also initiate more superficial relationships with a number of other individuals (e.g. speakers, tour hosts) they normally would not have met had it not been for their participation in the program. Granovetter (1973, 1983) described the benefits of such "weak" relationships, particularly when such relationships diversify an individual's (or group's) ties to other networks. Given that Day (2000) proposed "Networking opportunities build peer relationships across functional areas, leading to the creation of additional social capital" (p. 597), and others (e.g. Balkundi & Kilduff, 2006; Hitt & Ireland, 2002) have similarly viewed leadership development efforts as social capital building efforts, this cluster may be legitimately thought of as the *social capital building cluster*[19].

Diversity emerges as an important aspect of this cluster, and is consistent with the recruitment goals expressed by the program board of directors in their strategic plan (See Appendices H and R; LEAD New York, n.d.). In fact, diversity is a common factor in 5 (statements 12, 17, 22, 33, and 99) of the top 10 most important outcomes in the overall statement set. The importance of diversity in this cluster is consistent

[19] "Social capital" is an academic term, and the lay persons (i.e. board members) that participated in the interpretation session did not use this term to label this cluster. However, had an academic audience labeled this cluster, it may have been labeled the "social capital cluster".

with previous scholarly research on diversity in organizations, which suggests that increased heterogeneity (i.e. diversity) promotes learning and increases productivity (Reagans & Zuckerman, 2001) and can be a powerful mechanism for the control and distribution of resources, playing an important role in the innovation process (Ibarra, 1993).

3. Communication skills. Second most important in rank (average importance rating = 3.78), was the communication skills cluster (cluster 3). Clearly containing skill-related outcomes, this cluster is differentiated by the specificity of skills pertaining to communication (e.g. public speaking, listening). This cluster also included outcomes related to meeting/event management and improved critical thinking as it relates to evaluating sources of information. It is interesting to note that within this cluster, specific communication skills (e.g. learning how to debate, learning how to ask good questions) were ranked as relatively less important as compared to what might be considered more general improvement (e.g. statement 37) and confidence (statement 48) in communicating with others. Again, this set of outcomes is consistent with leadership skill improvement goals as expressed by the board of directors in the program strategic plan (see Appendix H, section A).

4. Broadened knowledge/awareness (of food and agriculture system). Cluster 4 was tied in importance (average importance rating = 3.72) with cluster 6. As one board member said during the interpretation session "this cluster describes the 'playing field'; the environment in which our leaders must operate and issues they must understand". It should be noted that statements in this cluster do not point to specific issues (e.g. pesticide use in agriculture) that class members should be aware of, but rather that class members should be aware of the *breadth of issues* facing the food and agricultural industry. In other words, statements in this cluster suggest that it is not as important that participants develop expertise in any particular industry sector or issue

area, but rather that they gain exposure to, appreciate the complexity of, and develop a more complete perspective of the "big picture" of the industry. Or, as Ibarra (1993) put it: "Those who understand how a system really works can get things done or exercise power within that system" (p. 494). Though less important, statements in this cluster also suggest that participants begin to realize the need for greater advocacy and promotion on behalf of the industry at multiple levels (i.e. local, state and national). Again, this cluster is consistent with stated program objectives (see Appendix H section C).

6. Personal development. The average importance rating was also 3.72 for cluster 6. Several statements in this cluster (e.g. statement numbers 2, 5, 7, 9, 10, and 63) were also related to improved self-confidence, but unlike the communication skills cluster, these referred to an overall improvement in participant confidence to take on leadership roles or face previously intimidating challenges. *Self-reflection* also emerged as an important theme in this cluster, as evidenced by statements 3, 117, 58, 4, 95, 87, 88, and 102. In fact, statement 3 ("increased self-awareness and modification of my behavior to more effectively interact with others") was the most important statement (average importance rating = 4.41) in the entire statement set, and three other statements from this cluster (numbers 2, 117, and 28) also placed within the top-ten most important statements, highlighting the importance of specific outcomes related to self-reflection and confidence-building. Statements 16, 24, and 87 also begin to surface the issue of *change*, a central component of the operational definition of leadership used in this study. Leadership style and deeply personal issues like considering values and ethics (e.g. statement 26) in decision making also emerge in this cluster, and are consistent with authentic leadership theory as offered by Avolio and Gardner (2005).

Statement 14 ("a tendency toward feeling 'superior' to others or becoming frustrated by those around you that may feel inferior") stands out in this cluster. It may be thought of as the "arrogance" statement in the overall statement set. It was one of the few negative outcome statements offered during the statement generation process, and during the sorting meetings it was clear to the researcher that many of the sorters had a difficult time deciding what to do with (i.e. where to place) this statement. As we shall see below in the ratings discussion, this statement was also rated as far less important (average importance rating = 1.75) and less feasible (meaning the program could not very well be held accountable for this outcome) than any of the other statements in the overall statement set. Though this statement was retained in the study because it represented a legitimate potential outcome of participation in the LDP, it is clearly an outlier in relation to all of the other outcome statements.

2. Developing leadership skills. Centrally located in the overall cluster map, nearly every statement in cluster 2 had high bridging values (discussed below), suggesting that this cluster (average importance rating = 3.67) is connected to every other cluster around it. Unlike the communication skills and networking, relationships and teams clusters (which identify skills in more specific domains) this cluster was identified by one board member as the "miscellaneous" skills cluster. In this cluster, several specific skill outcomes are identified (e.g. better time management, statement 96 and knowing how to dress appropriately, statement 49). These specific skills, however, are generally rated as less important than broader (though less well-defined) skill domains. For example, several statements (e.g. statements 34, 64, 76, 109, 25, and 43) identify an improvement in participant strategic thinking and decision-making processes. In fact, these *cognitive skills* are generally the most important skill areas

identified in this cluster[20]. Though these themes surface in other clusters as well, the issues of diversity appreciation, change management, conflict resolution and understanding broad issues surface in this cluster as well, again pointing to the interconnectedness of this cluster with others around it.

1. Recognizing leadership styles. Whereas cluster 6 (personal development) was more inwardly-directed (i.e. reflective), cluster 1 (average importance rating = 3.55) is clearly more outwardly-directed (i.e. considering how other people lead). More important statements within this cluster generally identified relatively positive outcomes like developing leadership in others (statements 27, 20, and 55) and learning from the leadership styles of others (statements 92 and 50). Once again, such outcomes are consistent with the leadership behavior and follower development elements of authentic leadership theory (Avolio & Gardner, 2005). Less important statements in this cluster generally pointed to less positive outcomes (i.e. those with a negative tone) like becoming more critical of other leaders (statement 1) and awareness of negative aspects of leadership (statements 60 and 52).

5. Political awareness. Like cluster 4, the political awareness cluster identified a knowledge domain, but cluster 5 was specific to the legislative process and political environment that leaders must operate in. Unlike cluster 4, however, this cluster was relatively unimportant (average importance rating = 3.45). And unlike most of the other clusters in this concept map, this cluster had a high proportion of anchoring statements (anchoring statements are the inverse of bridging statements), suggesting this cluster was the most isolated in the overall map. With the exception of statement 71 (“recognizing the importance of bringing a level of Ag issues awareness to local leadership programs, the media, politicians, government agency staff, and others in

[20] Again, “cognitive” is an academic term, and the lay persons (i.e. board members) that participated in the interpretation session did not use this term to label this cluster. However, had an academic audience labeled this cluster, it may have been labeled the “cognitive skills cluster”.

public service"), most of the outcomes in this cluster were not associated with other clusters. This cluster is directly related to stated program objectives regarding civic engagement (see Appendix H, section B), but may not be as important to program participants as the strategic plan suggests.

7. Challenges and expectations. Cluster 7 was ranked as the least important cluster (average importance rating = 3.34). During the statement generation process, a few participants identified a small number of potentially negative outcomes of participation in an LDP (e.g. "difficulties in balancing time away from home, family, etc."). With the exception of statement 14, this cluster is where most of those negative outcomes were sorted. Not wanting to label this cluster as a "negative outcomes" cluster, the board members instead chose to highlight the challenges of participation in such a rigorous program and the high expectations that are usually placed on program graduates. Outcomes in this cluster were not entirely negative. In fact, the two most important outcomes in this cluster (statements 105 and 111) recognized the value of such training and suggested the program reinvigorated participants and developed a sense of passion. Overall, outcomes in this cluster were not only relatively unimportant, but participants also rated them low on the feasibility scale. In other words, participants did not necessarily feel that the LDP could be held responsible for these outcomes if they did occur.

Underlying Regions

During the interpretation session, board members were not only asked to label each of the clusters, but they were also asked to identify any interpretable underlying regions (or "clusters of clusters") in the map (Kane & Trochim, 2007). These regions help identify the relations between constructs (Cronbach & Meehl, 1955). Three such regions were identified, summarized below. (See figure 3.6 in the preceding chapter for a graphical representation of these regions.)

Central to the overall concept map is the *skills* region. This region consists of the communications skills cluster, the developing leadership skills cluster, and the networking, relationships & teams cluster. While the two former clusters have an obvious skills connotation, the reader may wonder why the latter is included in the skills region. But during the interpretation session, several board members noted that cultivating networks, managing relationships and building teams can all be thought of as leadership skills, thus this cluster was identified within the skills region. The clusters within this region represent the first, second and fifth most important clusters, thus this region could be viewed as the most important of the three regions identified. Three statements related to diversity and networking (numbers 17, 22, and 33) tie for third in importance (average importance rating = 4.31) in the overall statement set, pointing to the importance of diversity and networking in the overall program outcomes. In general, the outcomes identified in this region are consistent with the objectives identified in the program strategic plan (see Appendices R and H). The observation that this LDP focuses on skill development is also consistent with study findings offered by Day (2000) and Russon and Reinelt (2004) that suggest that many LDPs continue to focus on (interpersonal) skill development.

Cluster numbers one, six and seven make up the *reflection* region. As noted earlier, the personal development cluster identified reflective behaviors that program participants employed as a result of participation. Statement 3 ("increased self-awareness and modification of my behavior to more effectively interact with others") exemplifies the reflective nature of this cluster. This cluster was central to, and more important than, the clusters on either side of it in the map. Though "recognizing leadership styles" was described as an outwardly-directed cluster above, board members felt that what was really occurring was "reflective consideration" of the leadership styles of others, and what could be learned from those observations.

Likewise, board members felt that becoming aware of the challenges of serving as a leader and the expectations that are the result of participation in a LDP (cluster 7) also served as "reflective consideration" of the consequential outcomes of participation in LEADNY. Thus, board members felt that clusters one and seven should be included in the reflection region of the concept map. It is interesting to note that this overarching concept of *reflection* is not explicitly identified in the program strategic plan as an intended outcome[21]. However, some of the skill outcomes identified in Appendix H, section A (e.g. personality type awareness and self assessment, commitment to lifelong learning) are captured by statements in this region. It is also interesting to note that many of the (reflective) practices identified in this region are consistent with many of the elements (e.g. leader self awareness, leader self regulation, leadership processes/behaviors) of the relatively contemporary stream of research on authentic leadership (Avolio & Gardner, 2005).

Cluster 4 (broadened knowledge/awareness of the food & ag system) and cluster 5 (political awareness) make up the *knowledge/awareness* region. Though cluster 5 referenced a fairly specific domain (i.e. public policy and political process), board members felt it still fit with the more general cluster of broadened knowledge/awareness of industry issues, because it helped participants understand the (political) landscape in which they must operate as leaders. The political awareness cluster is also relatively unimportant in comparison to the broadened knowledge/awareness cluster, suggesting that expertise in any given specific outcome (e.g. statement 53, "knowing how to navigate the multitude of agencies involved in regulating food and agriculture", average importance rating = 3.25) is relatively unimportant as compared to generally expanding one's perspective of the industry (e.g. statement 13, "I developed a broader, more complete perspective of NYS

[21] This is one important finding of this study that will be addressed further in the discussion chapter.

agriculture, and learned about many of the issues, obstacles, technologies and practices common to the industry", average importance rating = 4.31). It is interesting to note that in the program strategic plan, these two clusters are identified as separate and distinct program outcomes areas (see Appendix H, sections B and C), presumably of equal importance. However, the results of this study suggest that while they may be distinct clusters, they are certainly not of equal importance, and may be more closely related than originally thought (as indicated by their placement in the same region)[22].

Spanning Analysis – Relations between Statements and Clusters

As Cronbach and Meehl (1955) suggested, one of the keys to understanding constructs is to elaborate on their relations to other constructs in the nomological network. CM permits the calculation of bridging and anchoring values for individual statements and clusters of statements, which serve as indicators of the interrelationships between concepts represented on the map. Bridging values can range from zero to one, with lower values representing lower bridging scores, and higher values representing higher bridging scores. Anchors are the inverse of bridges, thus if a given statement had a bridging value of .70, the anchoring value would be .30. Kane and Trochim (2007) explain the difference between anchoring and bridging statements as follows:

> In CM, every statement must by definition be placed somewhere on the map. Sometimes multidimensional scaling places a statement in a location because it was sorted by many people with statements that are immediately adjacent to it. Such a statement might be considered an "anchor" for that part of the map because it reflects well the content in its vicinity. In other cases, a statement is placed where it is because it was sorted with some statements somewhat distant on one side of it and somewhat distant on the other, and the algorithm

[22] Again, this finding will be elaborated in the discussion chapter that follows.

has to place it somewhere, so it locates it in an intermediate position. Such a statement can be considered a "bridging" statement because it bridges or links the two more distant areas on the map. (p. 101)

Two examples are offered to illustrate the difference between anchoring and bridging statements. Figure 4.2 presents a spanning analysis of statement 36 ("increased awareness of legislative issues affecting agriculture"). Part of the political awareness cluster, this statement has a bridging value of only .05, thus it would be considered an anchoring statement for the cluster. Graphically, the heavy lines[23] linking this statement to others in this cluster, the lighter lines connecting it to statements outside of the cluster, and the general paucity of connections to other statements in the concept map overall indicate that this is a anchoring statement.

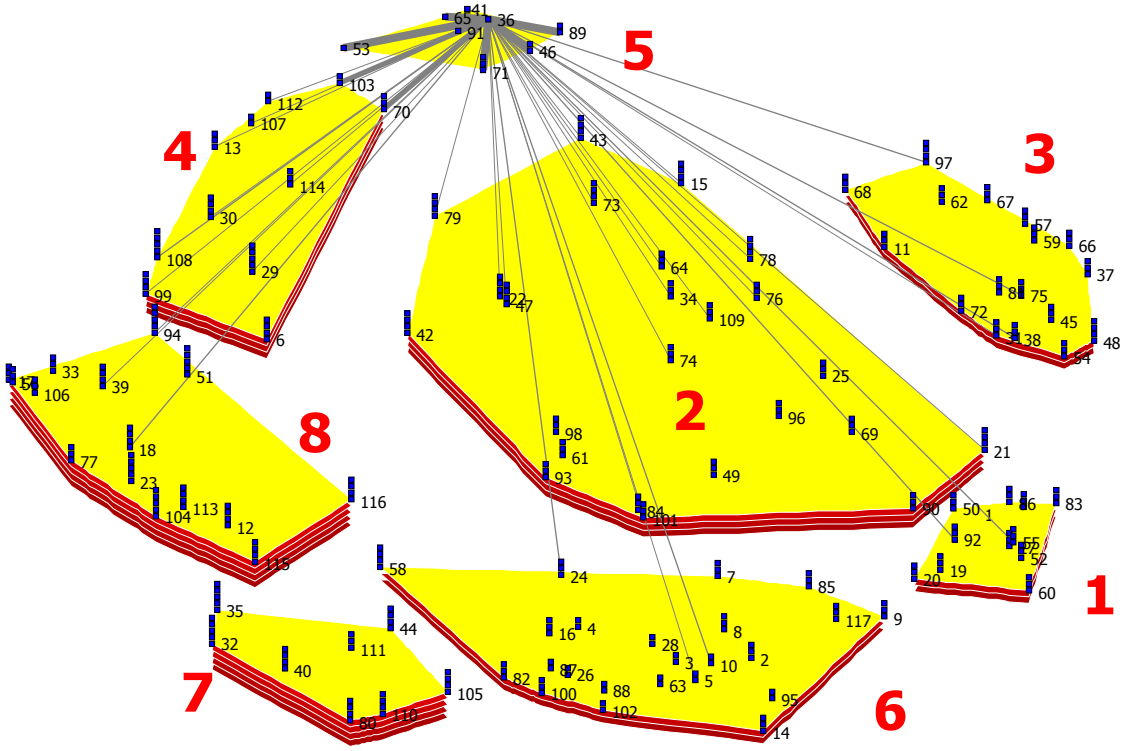

Figure 4.2 Spanning analysis for statement 36

[23] In the spanning analysis, the line weight between two points is determined by the number of people that sorted those two statements together in the same pile. Heavier lines indicate that more people sorted those two statements into the same pile.

Conversely, Figure 4.3 presents a spanning analysis of a bridging statement. Statement 94 (“meeting key decision makers in the industry and witnessing first-hand leadership styles/models”) has a bridging value of .90. Not only are there more connections to statements in other clusters, but the line weights of those connections are also heavier, indicating that more individuals grouped those statements together during the sorting process. Intuitively, the first half of this statement (“meeting key decision makers in the industry…”) links this statement to the networking statements in cluster 8, whereas the second half of the statement (“…witnessing first-hand leadership styles/models”) links it to the “recognizing leadership styles” cluster (number 1).

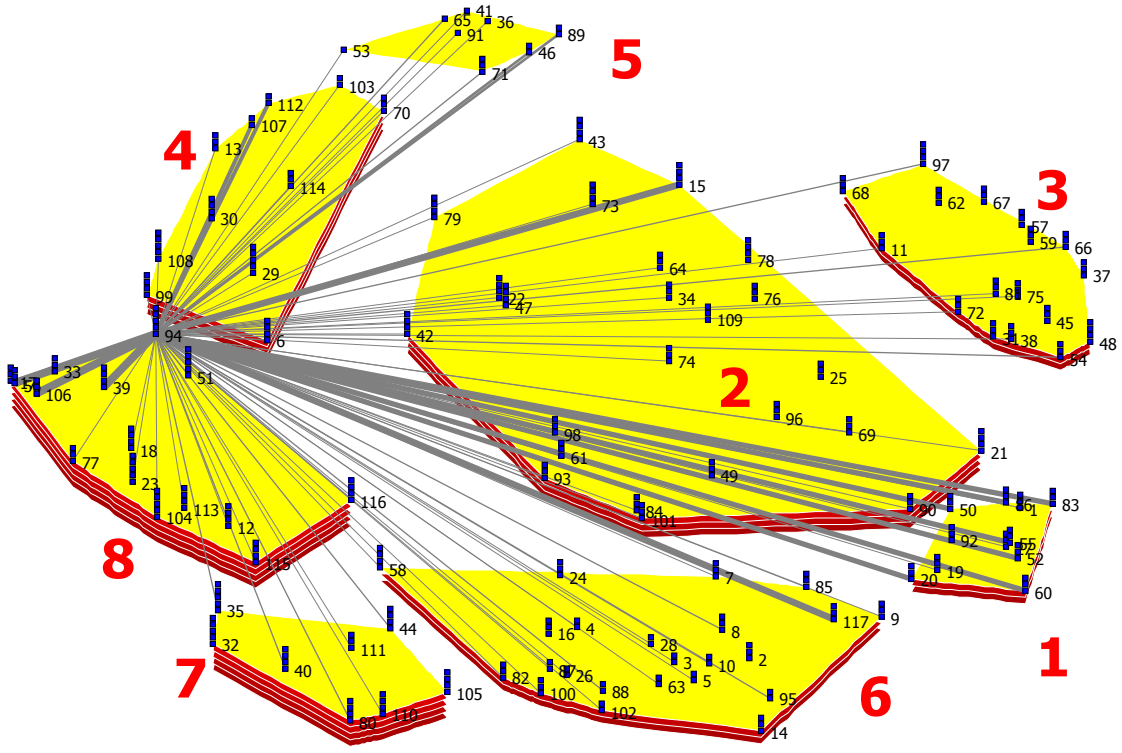

Figure 4.3 Spanning analysis for statement 94

Table 4.3 presents the average bridging values for each cluster in descending order. Bridging values for individual statements can be found in Appendix P.

Table 4.3 Cluster bridging values in descending order

Cluster	Bridging Value		Statement
	Mean	SD	Count
7. challenges & expectations	.74	.13	8
8. networking, relationships & teams	.71	.13	15
2. developing leadership skills	.59	.09	24
4. broadened knowledge/awareness	.58	.21	11
3. communication skills	.51	.08	17
1. recognizing leadership styles	.48	.04	11
6. personal development	.41	.09	23
5. political awareness	.18	.14	8

Figure 4.4 depicts relative bridging values for clusters and individual statements. For the clusters, each layer represents greater bridging value of the cluster, and for the statements, the height of each statement column represents greater bridging value for the statement. Discussion of the bridging values by cluster follows.

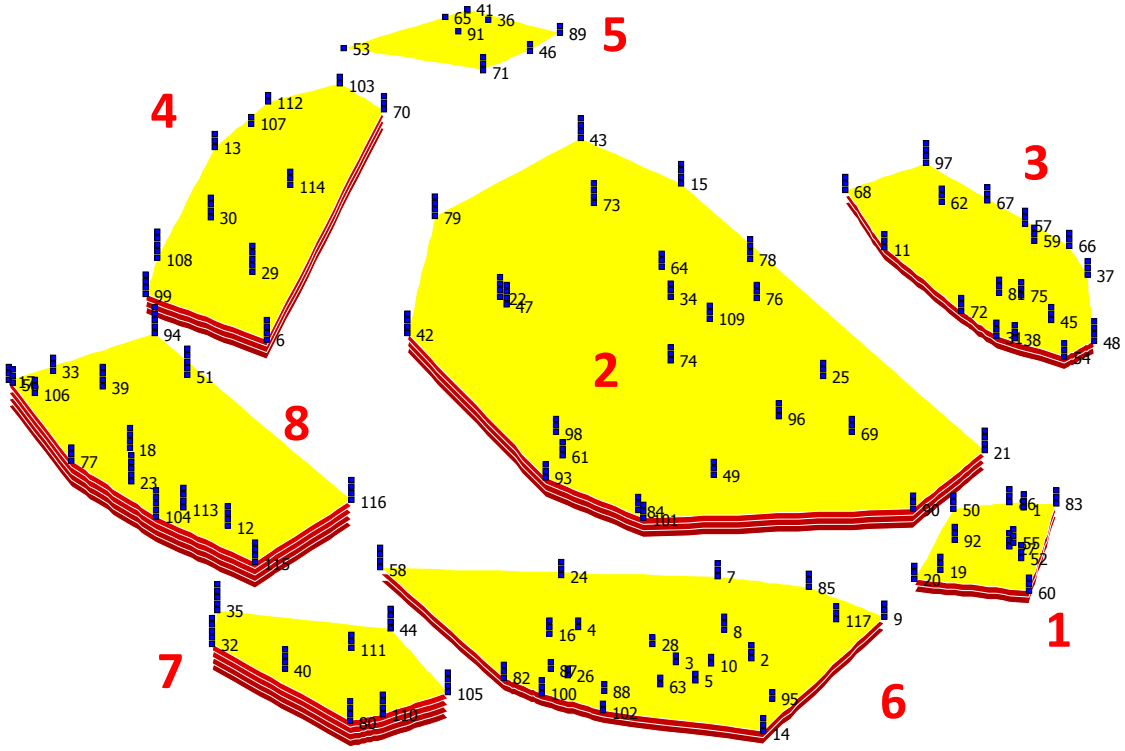

Figure 4.4 Cluster and point bridging map

Cluster 7 (challenges & expectations) not only had the highest bridging value (.74) of any cluster, but it also had no statements that served as strong anchors within

the cluster. This suggests that outcomes represented in this cluster, rather than being closely related to each other or distinctly identified on the map, are more likely loosely related to several other clusters and outcomes scattered throughout the map. As noted earlier, this is the cluster where sorters tended to put several of the statements with potentially negative connotations (e.g. statement 32, "strain on the management capabilities of the attendee…"). Though participants were clearly instructed not to create a "miscellaneous" pile during the sorting process, the researcher noted (during the sorting focus group meetings) that this is where the participants tended to put the "difficult" statements (i.e. those statements they had difficulty sorting into other, more distinct piles). Thus, the outcomes related to challenges of participation and expectations placed on program graduates seem to have underlying relationships to the more distinct sets of outcomes represented by other clusters, as opposed to being a uniquely distinct set of outcomes on their own.

Cluster 8 (networking, relationships & teams) had the second highest bridging value (.71) but unlike cluster 7, this cluster had several anchoring statements (numbers 17, 56, 106, and 33), all of which had to do with networking. Statements related to teams (numbers 104, 113, and 116) had relatively high bridging values, as did statements about changing away from status quo thinking (number 23), sharing ideas across a wide community (number 51) and learning from other leaders met during the program (number 94). Statement 51 ("sharing/spreading good ideas across a wide community") serves as an excellent example of a bridging statement. This statement connects several networking outcomes (e.g. numbers 39, 17, 56, and 106) within the networking, relationships & teams cluster to related outcomes in the communication skills cluster (e.g. statement 97 "learning to communicate or work more effectively with the media"), the broadened knowledge/awareness cluster (e.g. statement 30 "developing a desire to promote my industry and affiliated organizations"), and the

challenges & expectations cluster (e.g. statement 40 “you find yourself more in demand…”). Outcomes in this cluster are generally very interrelated to outcomes in most of the other clusters, with the exception of the political awareness cluster.

It should come as no surprise that the developing leadership skills cluster also has a relatively high average bridging value (.59). As noted earlier, this cluster is central to all others on the concept map, and was described by one board member as the miscellaneous leadership skills cluster. The fact that nearly all of the individual statements in this cluster have relatively high bridging values (and few statements are seen to be anchors in this cluster) supports the observation that this cluster is strongly related to all of the other clusters around it. For example, statement 43 (“developing the ability to analyze an issue at a global level and bring that issue down to a local level”) served as a strong bridge between statements (e.g. numbers 70 and 103) in the broader knowledge/awareness cluster and all of the statements in the political awareness cluster.

The broadened knowledge/awareness cluster (average bridging value = .58) had a mix of both anchoring and bridging statements. Statement 103 (“understanding that the agricultural industry has impacts at the local, state, national and international levels”) served as an anchor for both this cluster and the closely related “political awareness” cluster. Statement 107 (“developing a broader knowledge of the value of agriculture [beyond food production], e.g. the social and environmental benefits of maintaining farms”) and statement 112 (“developing a better understanding of the ‘big picture’ of the food and agriculture system; appreciating the interconnectedness and complexity of the whole farm-food system”) were the primary anchors for this cluster. All of the other statements in this cluster were bridges to outcomes in every other cluster of the map, suggesting outcomes in this cluster are also very much related to other concepts represented in the map.

Every statement within the communication skills cluster (average bridging value = .51) had ties to outcomes in every other cluster of the map. What sets this cluster apart, however, (and the reason this cluster's average bridging value was not higher) is the fact that most of these ties to other clusters were weak ones. In other words, statements in this cluster were infrequently piled with statements from other clusters (often by just one or two sorting participants), but frequently bridged statements within the same cluster. For example, the spanning analysis (Figure 4.5) for statement 75 ("learning how to ask good questions") illustrates its strong relationship with other statements in cluster 3, but relatively weak relationships with numerous statements from other clusters.

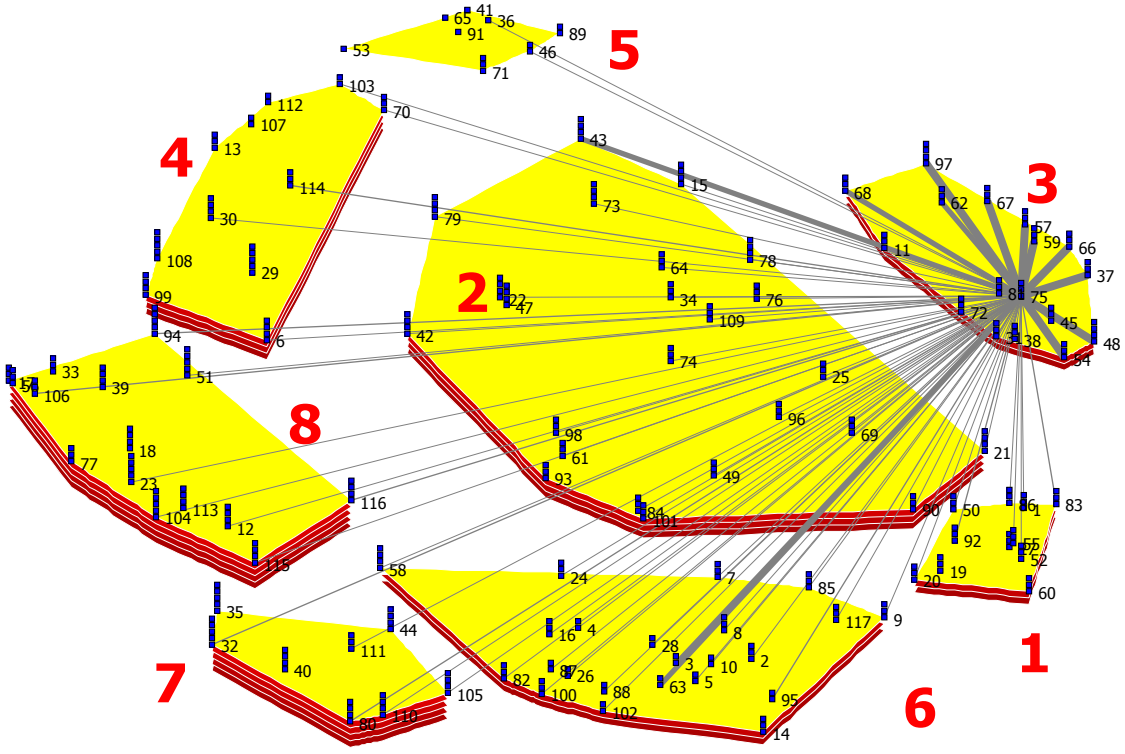

Figure 4.5 Spanning analysis for statement 75

Statements within the recognizing leadership styles cluster (average bridging value = .48) were neither strong bridges nor anchors. All statements in this cluster had ties to numerous statements in other clusters, the exception being clusters four and

five. This is, of course, consistent with the logic of concept mapping. Clusters (i.e. concepts) located further away on the map from other clusters should be conceptually different from those clusters. In this case, cluster one is on the extreme opposite side of the map as clusters four and five. It is not surprising, then, that there are few bridging ties between clusters 4, 5, and 1.

The personal development cluster (average bridging value = .41) had the strongest ties to the clusters on either side of it (i.e. cluster 1, recognizing leadership styles and cluster 7, challenges and expectations) in the reflection region. To a lesser extent, outcomes in this cluster were related to those found in the developing leadership skills cluster, and still weaker ties to outcomes located in the remaining clusters. The outcomes with the strongest ties to other clusters are those around the periphery of cluster 6, and the outcomes identified near the center of this cluster tend to function more as anchors for this cluster (i.e. they have lower bridging values). These anchoring statements represent truly reflective, introspective, and personal statements about program outcomes (e.g. statement 26, "I hold myself to a higher standard every day and in every aspect of my life; I strive to make more ethical decisions").

A distant last in the bridging analysis was the political awareness cluster (average bridging value = .18). Though no cluster is ever totally isolated in a CM activity, this cluster is noteworthy for its "stand-alone" characteristics. The broadened knowledge/awareness cluster is its closest relative in the knowledge/awareness region, and statement 53 ("knowing how to navigate the multitude of agencies involved in regulating food and agriculture") serves as a bridge between these two clusters. Statement 71 ("recognizing the importance of bringing a level of Ag issues awareness to local leadership programs, the media, politicians, government agency staff, and others in public service") has the highest bridging value of any statement in this

cluster, and links this cluster (loosely) to all of the other clusters in the map (as did statements 46 and 89 to a lesser extent). All of the other statements in this cluster (i.e. numbers 36, 41, 65, and 91) serve as anchors for this cluster, and are very specific to the political process and legislative issue. Though this cluster of outcomes may be conceptually better defined (and less tied to other constructs represented in the map), as was noted in the previous section of this chapter, it is also viewed as the second-least important cluster of outcomes by study participants.

Pattern Matches

In CM, pattern matches are typically displayed using "ladder graph" representations of the data. The graphs are so named because a perfect correlation between two patterns would result in a set of horizontal lines (like rungs on a ladder) between two vertical axes representing two or more variable values (e.g. male and female). The analysis computes average rating values across participants to arrive at statement averages, and then computes averages across all statements within a cluster to arrive at cluster average ratings for the scale in question (e.g. importance). Cluster names are listed on each side of the graph in their order of importance, and straight lines connect the cluster names on each side of the graph. A Pearson product-moment correlation (*r*) is calculated which represents the relationship between the variable values. Though pattern matching can be used to analyze specific statements within clusters, it is typically done at the cluster level (Kane & Trochim, 2007). As it is used here, pattern matching allows for the analysis of consensus across groups.

Agreement between Groups

Gender. For the rating process, 81 (66 percent) of the respondents were male, and 41 (34 percent) were female. In the total alumni population (N = 344), 245 (71 percent) are male, and 99 (29 percent) are female, so with respect to gender the respondent group is not very different than the population from which they were

drawn. As figure 4.6 shows, there was a high level of agreement (r = .92) between men and women in the study population as to the relative importance of clusters. In comparison to women, men ranked broadened knowledge/awareness (of food & ag issues) (cluster 4) slightly ahead of personal development (cluster 6) and developing leadership skills (cluster 2). Men and women ranked all other clusters in the same order of importance.

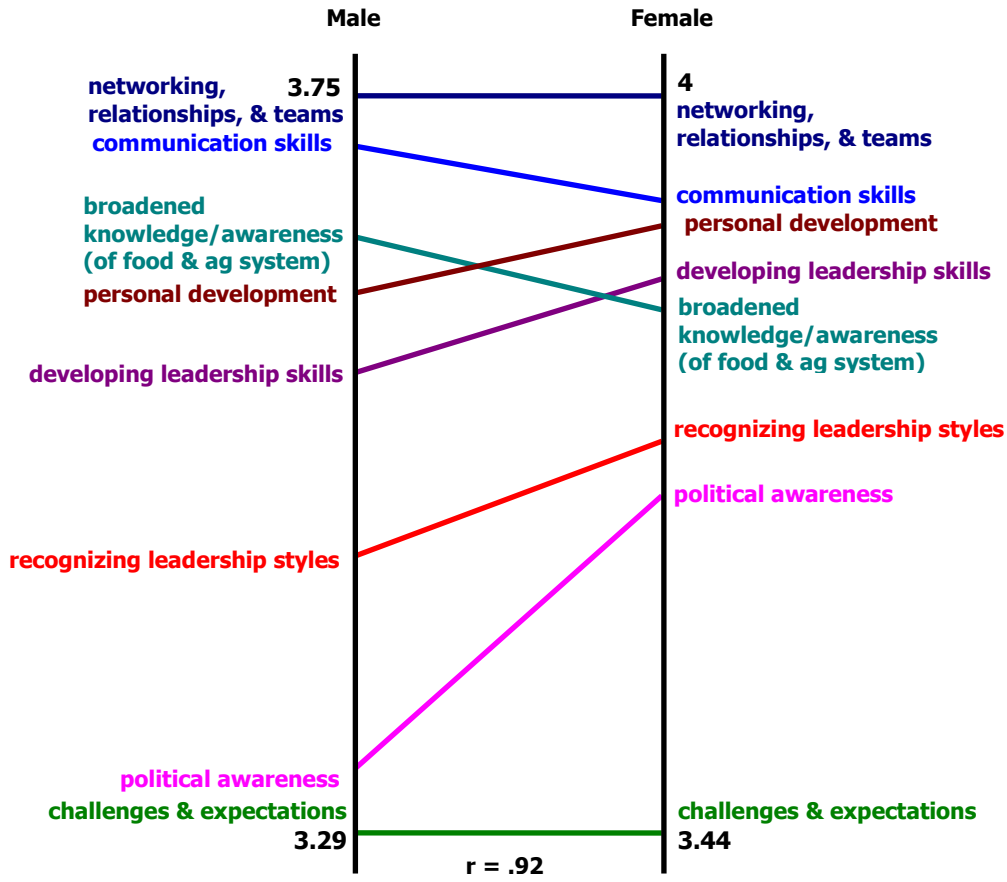

Figure 4.6 Ladder graph of cluster importance by gender

Cohort. Though it is possible to compare ratings across each of the 12 LEADNY cohorts from which data was collected, this would create an exceedingly complex graphic for presentation and would serve little purpose in this analysis. However, as an example, the importance ratings of the earliest cohorts (i.e. cohorts 1

and 2) are compared with those of the latest cohorts (11 and 12) in figure 4.7. Later cohorts place more importance on networking, relationships & teams (cluster 8) as compared to communication skills (cluster 3), whereas the earlier cohorts inverted this ranking. Later cohorts also place more importance on personal development as compared to broadened knowledge/awareness and developing leadership skills. All other cluster rankings remained the same, and overall there was a high level of agreement (r = .92) between these cohorts on cluster rankings.

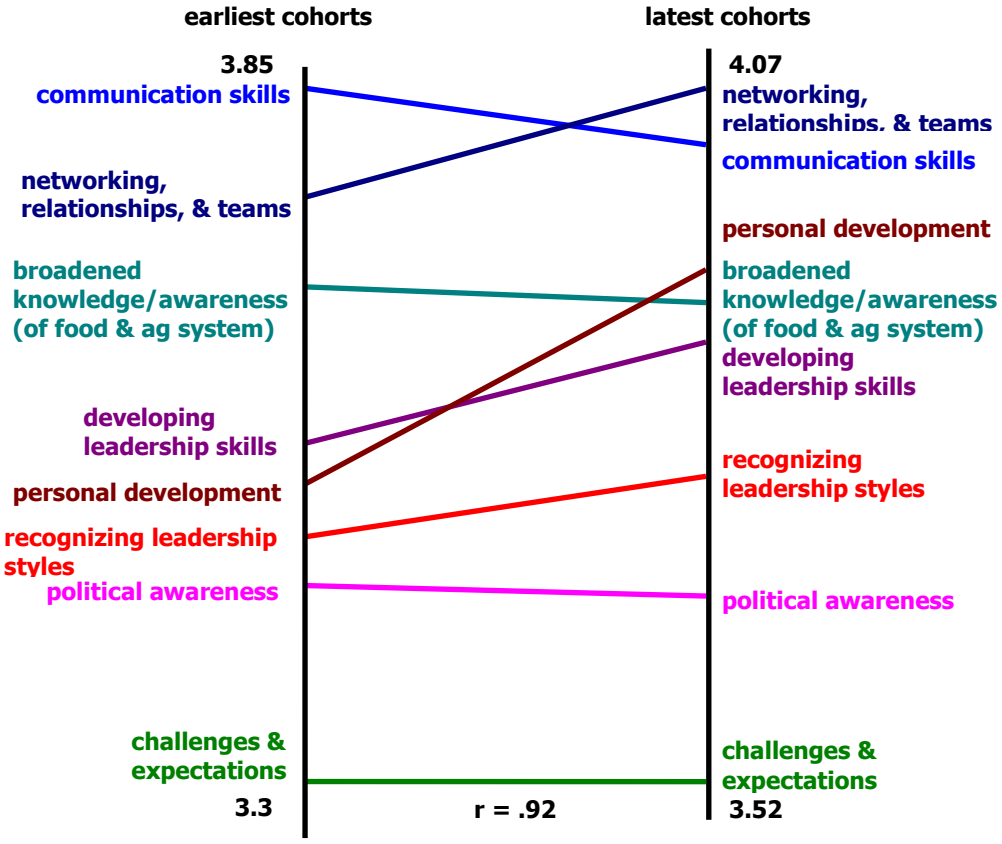

Figure 4.7 Ladder graph of cluster importance by early (i.e. 1 and 2) vs. recent (i.e. 11 and 12) cohorts

Education. Cluster importance ratings were analyzed based on the education level of study participants. Figure 4.8 compares the ratings of those participants that had not earned a college degree (n = 14), those that had earned an undergraduate (i.e.

associate's or baccalaureate) degree (n = 62), and those that had pursued graduate coursework or earned a master's degree (n = 45)[24]. As Figure 4.8 shows, there was relatively strong agreement among these groups (r = .9 and r = .95) as to the cluster importance ratings. Compared to those that did not hold a college degree and those that had pursued graduate course work, undergraduate degree holders rated broadened knowledge/awareness as more important than personal development and developing leadership skills (and recognizing leadership styles as compared to those with no college degree). Aside from this one cluster, little variation in cluster ranking is evident across educational level.

Employment. As noted previously, program stakeholders believe functional background diversity (i.e. type of employment) to be a salient demographic characteristic related to team performance (Bunderson & Sutcliffe, 2002; Pelled, et al., 1999). Participants are therefore recruited from diverse industry sectors, and though the specific makeup of any given cohort varies, most cohorts generally follow a "one-third rule" (LEAD New York, n.d.). In any given cohort roughly one-third of the class members come from a production agriculture (i.e. farming) background, one-third come from the for-profit agribusiness sector, and one-third come from an "other" employment category which includes not-for-profits, government agencies, and educational organizations. Study participants were asked to identify their primary type of employment, and a pattern matching analysis was conducted based on this employment demographic as shown in Figure 4.9.

[24] One participant that had earned a doctoral degree was excluded from this portion of the analysis.

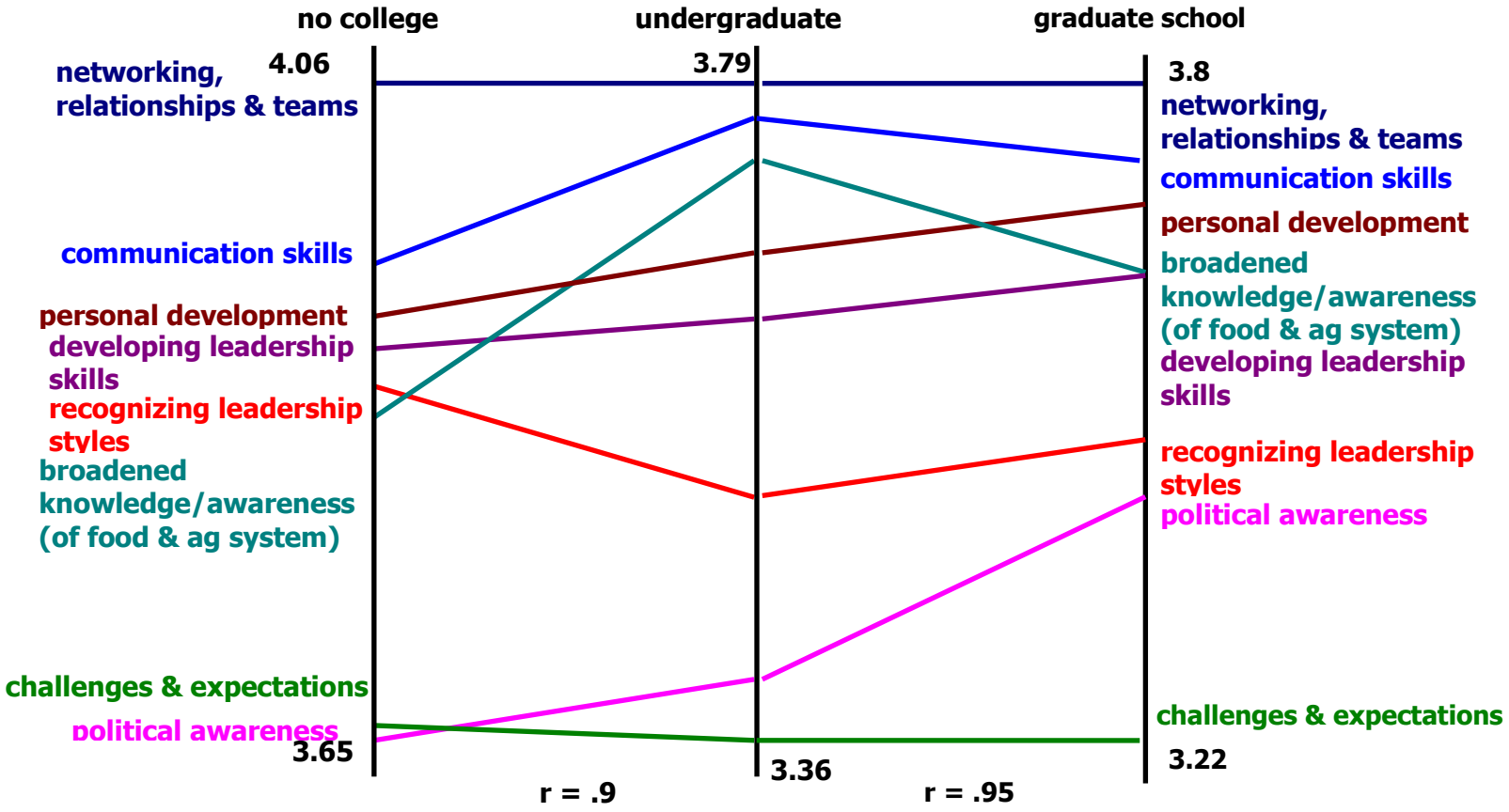

Figure 4.8 Ladder graph of cluster importance by education

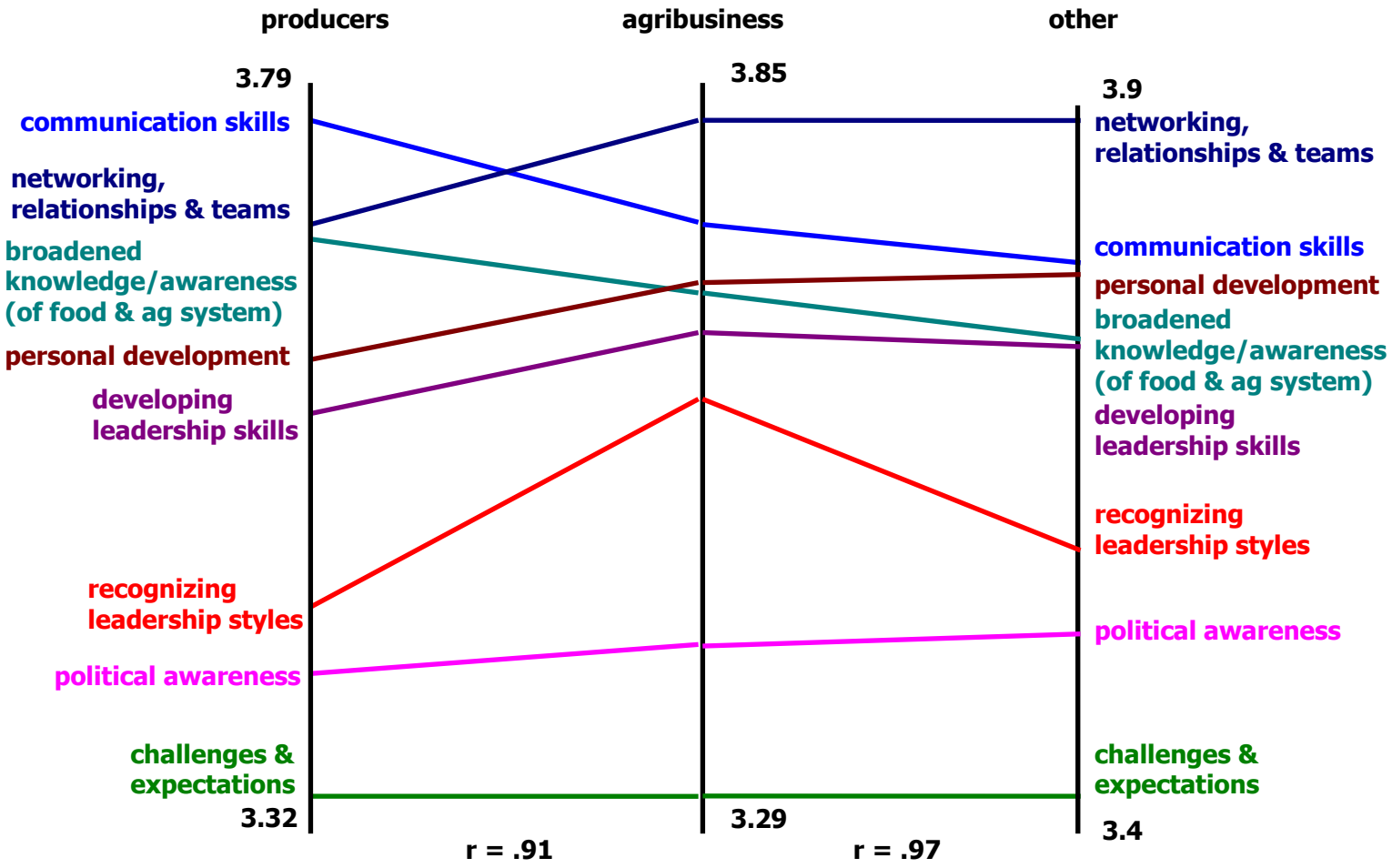

Figure 4.9 Ladder graph of cluster importance by employment

As Figure 4.9 shows, there was near perfect agreement (r = .97) between those employed in the other employment categories and those employed in for-profit agribusinesses. Producers, on the other hand, felt that communication skills were more important than networking, relationships and teams outcomes, and they also felt that broadening their knowledge/awareness of food and agricultural system issues was more important than personal development (i.e. reflection). All three employment categories were in agreement on the ranking of the bottom four clusters.

Age. Study participants were asked to report their current age (M = 49.25, SD = 10.04) and age at completion of the program (M = 39.75, SD = 7.42). Pattern matches were calculated comparing those currently aged 49 or younger to those over 49, and comparing those under age 40 at completion to those over age 40 at completion. In both pattern matches, Pearson product-moment correlations indicated strong agreement (r = .96 for both comparisons) across the age demographic. Relative rankings of the clusters were also virtually identical, so ladder graphs for these pattern matches are not included here.

Agreement with Stated Program Objectives

A pattern matching approach can also be used to determine if the program-as-intended "matches" the program-as-received by participants[25] (Kane & Trochim, 2007). The LEADNY board of directors developed and approved a strategic plan in 2005, and then revisited, slightly revised, and re-approved that plan in 2008 (LEAD New York, n.d.). Both plans included the identification of intended program outcomes (see Appendix H) organized into one of three general categories: a) leadership skill development, b) public policy process awareness and civic responsibility (i.e. engagement), and c) broadened knowledge/awareness of relevant industry issues.

[25] Though no ladder graphs are used for this portion of the analysis, the logic of pattern matching applies to this portion of the analysis.

Additionally, the plans highlighted the importance of diversity in cohort membership (See Appendix R). And though anecdotal, much of the program's marketing material (LEAD New York, n.d.) points to *networking* as a primary benefit of participation (i.e. the opportunity for participants to develop personal and professional networks). Table 4.4 presents a content analysis (Krippendorf, 2004) of stated program objectives (i.e. intended outcomes) and outcomes identified by study participants. Intended program outcomes (taken from the strategic plan) are paraphrased on the left side of the table. Clusters and specific statements (taken from the concept map) addressing these intended outcomes are offered on the right side of the table.

Several inferences may be made based on this analysis. First, this analysis suggests that most – if not all - of the intended program outcomes are realized by program participants. In fact, the only intended outcomes that are not explicitly covered by outcomes identified in the concept map are specific topics identified in the "issues awareness' section of the table. Most of these specific topics would presumably be addressed in the broader knowledge/awareness (of food & ag system) cluster in the concept map. However, when generating statements for the CM activity, participants simply did not generate statements to that level of specificity. For example, no statement in the concept map specifically addressed the labor/immigration reform issue, but it is understood that labor/immigration reform is an important issue facing the food and agricultural industry, and would naturally be discussed in the program. In other words, it is reasonable to assume that outcomes in the broadened knowledge/awareness cluster in the concept map would address most of the specific topics identified in the issues awareness section of intended program outcomes.

Table 4.4 Intended outcomes compared to outcomes as perceived by participants

Intended Program Outcomes (as taken from the program strategic plan)	Addressed by: Cluster #	Statement #
Leadership skills	***2, 3, 8***	
Public speaking, written communication, and effective listening	3	37, 45, 48, 54, 75
Working with the media, marketing and promotion	3	66, 97
Conflict Resolution, argumentation and debate	2, 3	31, 61, 81
Personality type awareness and self assessment	2, 6	3, 5, 58, 63, 87, 95, 98, 117
Teambuilding and Teamwork (Bonding Social Capital)	8	33, 77, 104, 113, 115, 116
Networking, diversity appreciation (Bridging & Linking Social Capital)	2, 4, 6, 8	17, 22, 33, 51, 56, 58, 73, 94, 99, 106
Meeting management	3	57, 59, 62, 67, 68
Problem identification / Collaborative problem solving	2	25, 74
Critical thinking / Systems thinking / Change management	1, 2, 3, 5, 6, 8	11, 16, 21, 23, 24, 34, 46, 64, 76, 79, 92, 109
Technological literacy / research skills	2	15
Time management and organization	2	90, 96
Commitment to lifelong learning	2, 6	4, 8, 88, 95, 101
Civic Responsibility	***4, 5***	
Activities will help our participants understand the policy development process at the local, state, federal and international levels.	2, 5	41, 53, 78
In addition to learning how the policy development process works, they will learn how it affects them and how to influence it.	3, 5	36, 38, 65
Participants will be challenged and motivated to get involved in the public policy process and community service roles.	4, 5, 6, 7, 8	9, 18, 29, 30, 35, 39, 40, 70, 71, 80, 111
Awareness of our "place" in a global society.	2, 4, 5	6, 43, 103, 112
Issues Awareness	***4***	
Labor, immigration reform		
Trade, free trade agreements		
Environment	4	107
Technology		
Food safety/security		
Land use and development, farmland preservation efforts		
Ethics	6	26
Innovation/creativity/change	2, 3, 6	16, 21, 72
Specific agricultural sectors (e.g. dairy, equine, forestry)	4	13, 99

This analysis also reflects the complexity of the program in action, as indicated by the number of clusters and statements that address any given intended outcome. For example, intended outcomes falling in the "leadership skills" section should naturally

be addressed by clusters 2, 3, and 8 in the concept map (i.e. the clusters falling within the skills region of the map). However, as we see in Table 4.3, outcomes in clusters 1, 4, 5, and 6 also address several of the intended outcomes in the leadership skills section. As Cronbach and Meehl (1955) suggested, understanding constructs is indeed dependent on understanding their relationship to other constructs within what they called a nomological network. The concept map can be thought of as a graphical representation of such a network, and as this analysis points out, the clusters (i.e. constructs) are indeed interrelated.

These results further suggest that the program's intended outcomes (as stated in the strategic plan) may not capture all of the outcomes that are realized by participants. Many of the outcomes identified in the reflection region (clusters one, four and seven) of the concept map where never articulated as intended program outcomes, suggesting they should be added in future depictions of the program. For example, statements 7, 9, and 100 (in the personal development cluster) are all ranked as important outcomes and deal with enhanced confidence and self-esteem (as do other statements throughout the concept map). However, nowhere in the intended program outcomes is enhanced confidence or self-esteem mentioned. Thus, future depictions of the program should incorporate previously overlooked outcomes in particular, but also over-arching concepts such as "reflection".

This analysis also suggests that the organization and depiction of some program outcomes should be revised to reflect their relative importance. For example, networking and teambuilding are listed as specific intended outcomes within the broader category of leadership skill development. But this study suggests that networking and teambuilding are of *primary* importance, and should therefore be described as a distinct construct within the program. Conversely, public policy process awareness and civic responsibility are currently identified as a distinct, major intended

outcome area, but the CM analysis suggests that the importance of this cluster of outcomes might be de-emphasized in the future.

Feasibility

In addition to rating each statement on an *importance* scale, study participants were also asked to rate each statement on a *feasibility* scale. Specifically, participants were asked to rate the relative likelihood that LEADNY could accomplish a given outcome (or be responsible for a specific consequence of participation in the LDP). One way to compare the importance and feasibility ratings of individual statements or clusters of statements is through the use of ladder graphs, as described above. Figure 4.10 presents a comparison of importance and feasibility ratings by cluster for all users.

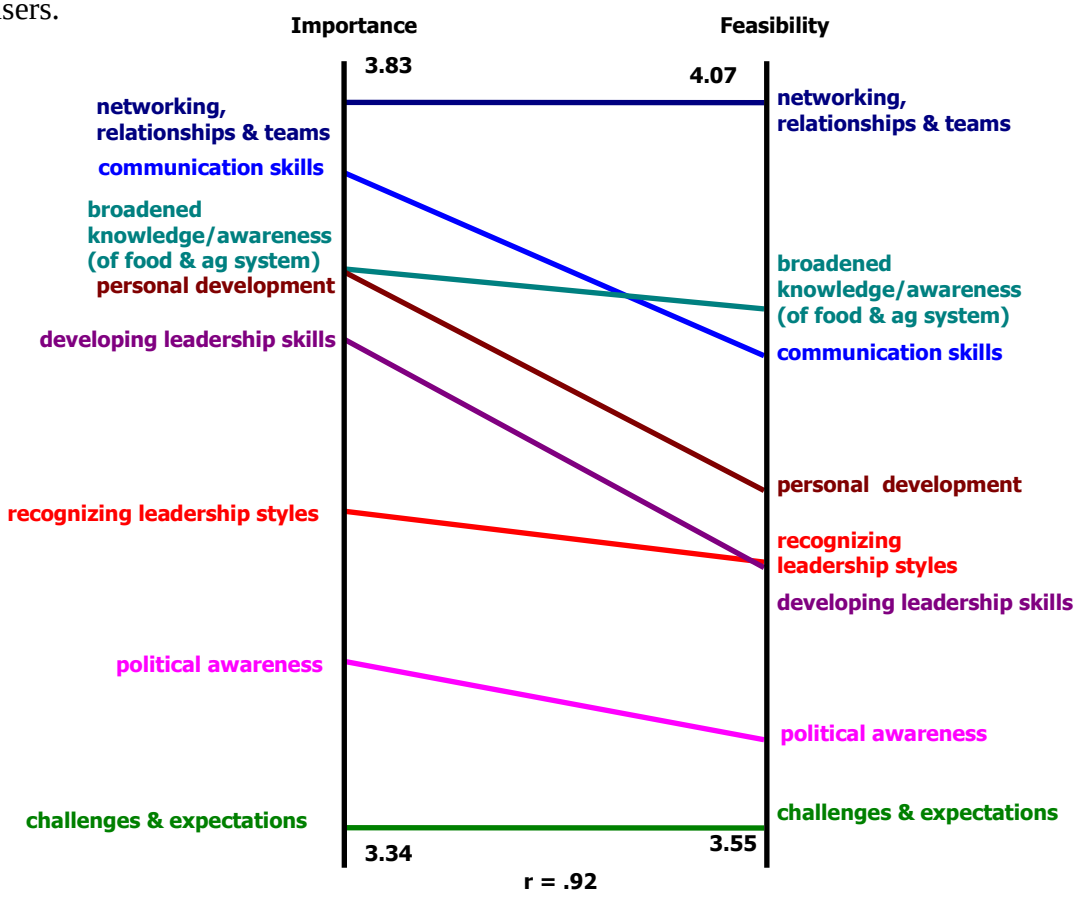

Figure 4.10 Ladder graph comparing importance and feasibility by cluster

As Figure 4.10 suggests, there is a strong relationship (r = .92) between the importance and feasibility of achieving various types of outcomes. The only notable difference in rank order of clusters in these two dimensions exists between the communication skills and broadened knowledge/awareness clusters. Participants generally felt that it was more important (as compared to the knowledge/awareness cluster), but less feasible, for the program to improve participants' communication skills; it was more likely that the program could broaden participants' knowledge/awareness of issues as compared to improving their communication skills.

Another way to present such a comparison is through the use of what is commonly referred to as a "go-zone" plot. In these bivariate plots, importance ratings are plotted along the x-axis of a two-dimensional graph, and feasibility ratings are plotted along the y-axis. The resultant graph shows individual statement points in two-dimensional space. Lines are drawn to represent the mean importance and feasibility ratings for that set of statements, thus dividing the cluster contents into four quadrants. Statements falling within the upper-right quadrant are rated as relatively important *and* feasible (compared to the mean). In most cases, these statements represent the most actionable items in the statement set, hence the term "go-zone". Figure 4.11 presents a go-zone plot for the developing leadership skills cluster, and serves as an example for discussion purposes.

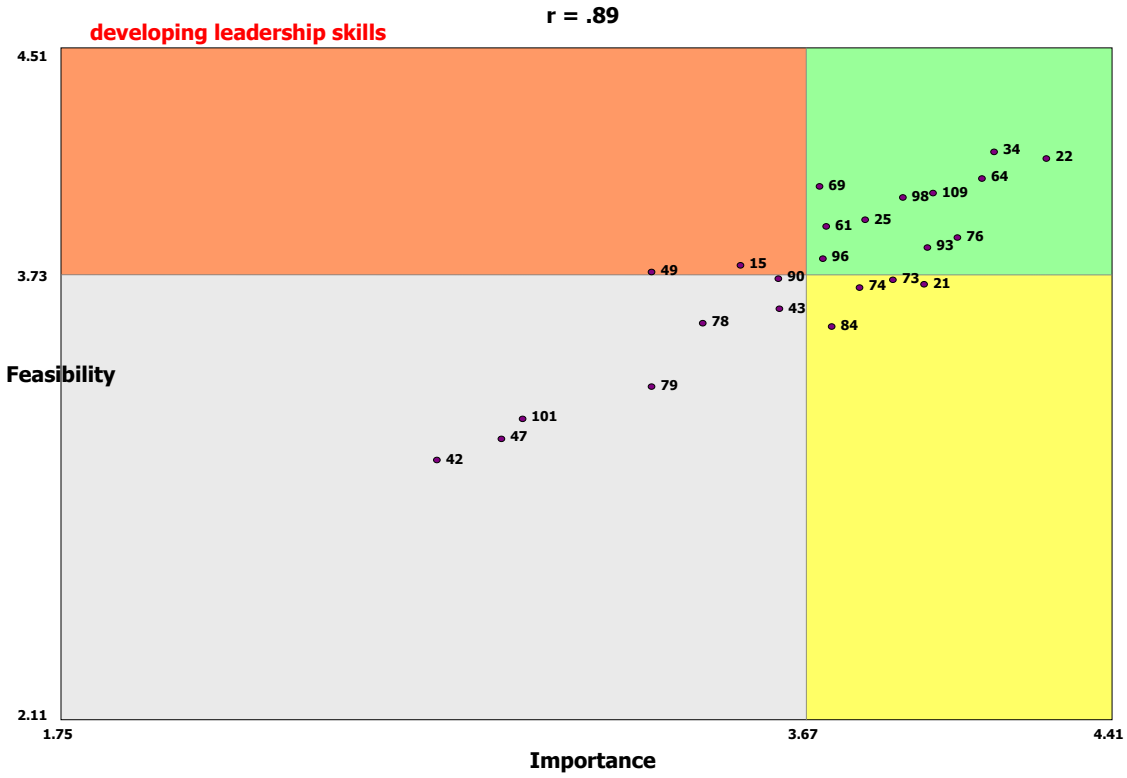

Figure 4.11 Go-zone plot for the developing leadership skills cluster

As Figure 4.11 suggests, statement 49 "learning how to dress appropriately…" (in the upper-left quadrant) may be a feasible outcome, but is not considered to be a very important outcome. On the other hand, statement 84 "developing the ability to identify and act upon opportunities; to seize an opportunity in the midst of a crisis" (in the lower right quadrant) is generally considered to be an important outcome, but one that the LEADNY program is relatively less likely to achieve. In lay terms, teaching a leader how to dress is relatively easy but unimportant, whereas teaching a leader to look for opportunities in a crisis situation is much more difficult, but also more valuable. Certain outcomes (in the lower left quadrant) are neither important nor feasible. For example, statement 42 "enhanced ability to do fundraising for other programs" was rated very low on both scales, suggesting that this outcome (and others like it) should be reconsidered in future program development and implementation.

Finally, several outcomes are identified as both important and feasible (in the upper-right quadrant). For example, statement 22 "having contact with people on multiple sides of an issue and learning to appreciate diversity…" is not only important, but is also something the program can realistically achieve (e.g. through targeted recruitment efforts and selection of diverse cohorts, or selection of speakers with diverse viewpoints).

Though go-zone plots for all other clusters were analyzed, they are not shown here because the results are somewhat unremarkable (i.e. they are very similar from plot to plot). Rather, a comprehensive go-zone plot for all statements, all clusters, and all participants is shown in Figure 4.12. Several pertinent observations can be made based upon this analysis.

First, the observant reader will note the obvious linear relationship (r = .91) between importance and feasibility ratings across the entire statement set. Even statement 14 (previously referred to as the "arrogance" outcome) stills conforms to this linear model, though it is clearly an outlier (in the extreme lower-left of the plot) to the remainder of the statement set. It is also notable how few statements fall into the "feasible but not important" (upper left) and "important but not feasible" (lower right) quadrants. What this suggests is that if participants thought a given outcome was important, they generally also thought it was feasible, and vice-versa[26].

[26] The colloquial expression "if it's important, it's worth doing" comes to mind here.

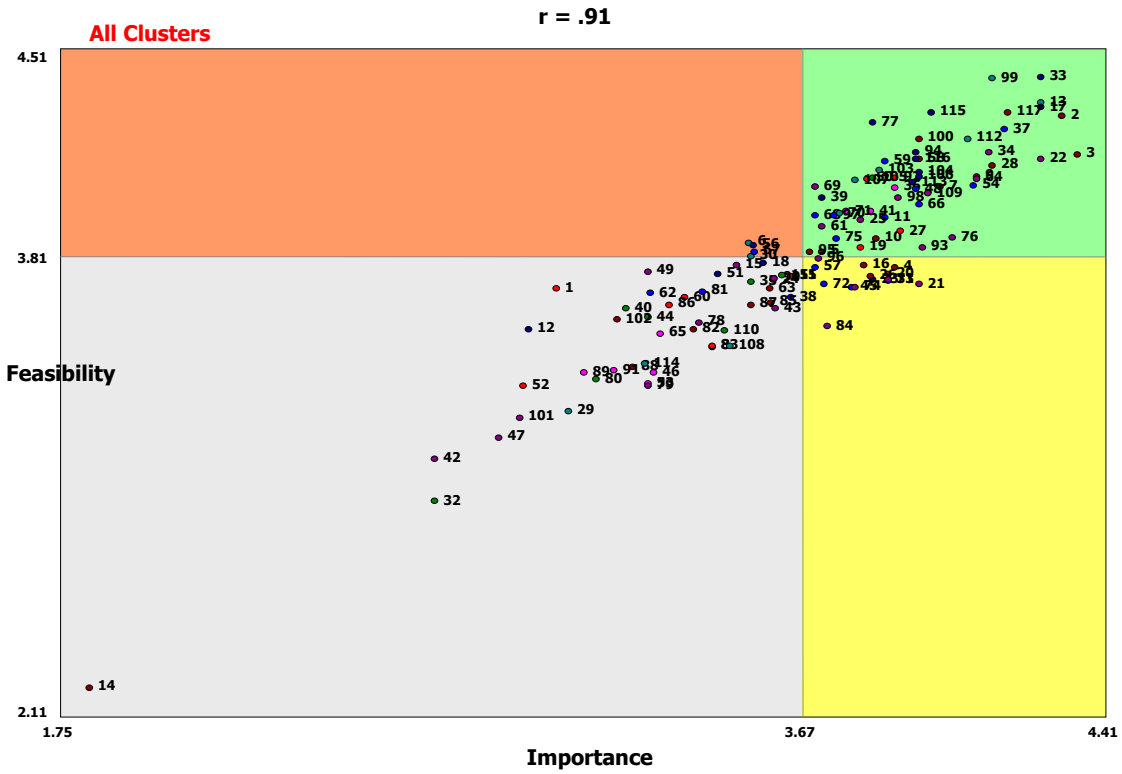

Figure 4.12 Go-zone plot of all statements for all participants

One final observation can be made with regard to this plot. During the data collection process, the researcher noted that participants generally had difficulty not only sorting, but also rating, statements that had a negative connotation. It is interesting to note that all such "negative" statements (e.g. number 32, "strain on the management capabilities of the attendee…") fall within the lower-left quadrant of the graph. This suggests that such potentially negative outcomes are not only relatively unimportant, but are also unlikely to be the (sole) result of participation in the program.

Conclusion

This chapter presented the results of the analyses performed on the data collected for this study. The next chapter discusses these findings in greater detail, specifically as they address the research questions outlined in the introduction.

CHAPTER 5

DISCUSSION

Purposes of this study were to a) identify underlying theoretical constructs operationalized in the LEADNY program and b) develop a theory-based framework that might be used for both program planning and future theory-based evaluation. This chapter is organized to address, in turn, each of the research questions posed for this study. Together with the preceding chapter (results of analysis), answers to these questions help us achieve the broader purposes identified above.

Substantive Questions: An Emergent Theoretical Framework

Expected Outcomes and Construct Identification

This study resulted in the identification of 117 specific outcomes (Appendix G) of participation in the LEADNY program. These outcomes were identified by a subset of program alumni (n = 25) through a participatory process guided by a specific focus prompt and brainstorming guidelines that encouraged them to think broadly about the outcomes of participation in such a program. This stage in the research process directly addressed the first substantive question posed for this study: "What are the expected outcomes (as perceived by program alumni[27]) of participation in the LEADNY program?"

As a check on the coverage of this list of perceived outcomes, it was compared to a list of expected outcomes generated by the board of directors during strategic planning processes conducted in 1995 and again in 1998 (Appendix H). Virtually every expected outcome identified by the board is addressed by at least one of the outcomes realized by program alumni. For example, the strategic plan identifies

[27] Though a probability sampling strategy was not used, the representativeness of the study participants to the overall LEADNY alumni population (see the methods chapter for this discussion), coupled with a very good response rate (over one third of all alumni participated in at least one phase of this study), suggests that these findings may well represent the outcomes that might be identified by all program alumni.

"public speaking, written communication, and effective listening" as desired leadership skill outcomes, and the study participants identified "general improvement in communication and presentation skills" (statement 37) and "improved listening skills" (statement 54) as two of the most important and most feasible outcomes of participation in the program. Other outcomes – not identified by the board in their strategic plan – were identified by alumni as well. Closer analysis of these results leads to some surprising, and not-so-surprising, conclusions.

Given that nearly all of the intended outcomes were matched by outcomes realized by alumni, program managers (i.e. the researcher and board members) were not surprised to see several of the clusters[28] that emerged in this study. The intended outcomes identified in the program strategic plan (Appendix H) fall into three broad categories: leadership skill development, civic engagement (including understanding the political process), and broadened knowledge of relevant issues. The following constructs identified in the study - communication skills, developing leadership skills, and networking, relationships and teams – all address the intended leadership skill development outcomes identified in the strategic plan. Likewise, the political awareness cluster identified in the study addresses the civic engagement outcomes intended by the program. Finally, the broadened knowledge/awareness cluster identified in the study addresses many of the intended outcomes related to broadened knowledge of relevant issues identified in the strategic plan.

What was surprising to the program management was the emergence of the reflection region, and the specific constructs within that region. Though certain specific outcomes were intended (e.g. "diversity appreciation") and were in fact identified by program alumni (e.g. statement 50 "realizing you can learn from

[28] In previous chapters, the case was made that clusters represent theoretical constructs or conceptualizations of program theory components. The terms "cluster" and "construct" are therefore used interchangeably in this chapter.

everyone…" and statement 92 "realizing there is more than one 'right way' to lead…"), program managers never realized that these groups of reflective practices might be distinct constructs in their own right. Not only did personal development emerge as a distinct construct, but specific outcomes within this construct (e.g. statement 3 "increased self-awareness and modification of my behavior…" and statement 117 "increased reflection on personal leadership styles…") were among the most important specific outcomes identified in the overall study. These findings are consistent with many of the suggested characteristics (e.g. self-management capabilities; self-awareness) of LDPs offered by Van Velsor and McCauley (2004). These results suggest that program managers should pay closer attention to (and intentionally manage) the outcomes identified in the personal development and recognizing leadership styles constructs. Though challenges and expectations emerged as another distinct construct within this reflection region, the relatively unimportant and low feasibility ratings the outcomes in this cluster received suggest that less attention might be paid to this set of outcomes (though they should not be completely ignored, as they represent legitimate concerns identified by program alumni).

Also surprising to program managers were the relative importance ratings and specificity of several of the constructs. First, program management had always been under the impression that civic engagement/political process outcomes were on par in importance with other intended program outcomes. However, the results of this study suggest that is not the case. Not only was this construct the second least important, but it was also relatively poorly related to other constructs in this program. Likewise, though the broadened knowledge/awareness cluster was tied for third in importance, the specific outcomes in this cluster indicate that what is important is a *broad awareness* of relevant industry issues, not necessarily specific subject matter expertise. Taken together, these results suggest that knowledge/awareness of specific topical

areas (or subject matter expertise; intelligence) may be far less important than originally thought, and support the notion that early leadership theories may have over-emphasized the importance of leader intelligence (Bass, 1990).

On the other hand, some constructs emerged as more important and more distinct than originally thought. For example, though program management always understood communication skills to be an important set of intended program outcomes, they were previously subsumed by the broader category of leadership skill development. The results of this study suggest that not only are communication skills a fairly distinct set of outcomes, but the fact that they are rated as the second most important construct suggests that this set of outcomes is a more prominent theoretical feature than previously thought. Few (if any) contemporary leadership theories place much emphasis on communication skills, but this study suggests that an important function of LDPs may be the enhancement of a leader's communication skills.

Likewise, networking, diversity[29] and teambuilding outcomes were previously identified as subordinate outcomes in the broader category of leadership skill development. However, the emergence of networking, relationships and teams (and as I argued in the preceding chapter, social capital) as a distinct construct – together with its ranking as the most important construct in the program – suggests that the importance of this set of program outcomes should be acknowledged by distinguishing it as a *construct of primary importance* in this program. As noted in the literature review, this finding adds to the theoretical strands of contemporary leadership theories (e.g. authentic leadership, relational leadership theory) which focus on the social aspects of leadership (Avolio & Gardner, 2005; Boal & Hooijberg, 2001; Uhl-Bien, 2006; Van Velsor & McCauley, 2004). Building diverse personal and professional

[29] Though the term "diversity" did not appear in this cluster label, several of the specific outcome statements identified by program alumni point to the importance of diverse relationships and network connections, hence diversity appreciation is understood to be encompassed in this cluster.

networks is important not only to team and organizational effectiveness (Ibarra, 1993; Reagans & Zuckerman, 2001) but to individual leader effectiveness as well (Balkundi & Kilduff, 2006; Granovetter, 1973; Ibaraa & Hunter, 2007). As Balkundi and Kilduff suggested, "Leaders…generate and use social capital through the acuity with which they perceive social structures and the actions they take to build connections with important constituencies within and across social divides" (p. 435). This stream of leadership theory suggests that leaders with more diverse network connections (and more social capital) have farther-reaching influence. The fact that this social capital building function has emerged as the most important construct in this study reinforces the notion (Day, 2000) that LDPs serve an important social capital building role.

In summary, then, though earlier leadership development theories may have acknowledged the importance of skill development in a general sense (Bass, 1990; Kouzes & Posner, 1987), this study identifies specific skill-related domains (i.e. communication skills and networking, relationships, and teambuilding skills), and underscores the importance (indeed, the primacy) of the skill-improvement function of LDPs. This study also identifies reflective practices as an important component of the leadership development process (Avolio & Gardner, 2005; Van Velsor & McCauley, 2004).

Toward a Theory-based Framework

Understanding constructs. This section addresses the second substantive question of the study: "Can the constructs identified in the concept mapping project be used to develop a theoretical framework for the program?" As Cronbach and Meehl (1955) suggested, knowing more about constructs involves several conditions.

One thing that can help us understand theoretical constructs is increasing the definiteness of their components. The clusters identified in this study represent constructs, and the individual statements within each cluster help us explicate that

construct. For example, the communication skills cluster consisted of 17 specific outcomes ranging from improved listening and questioning skills to developing debate skills and learning how to fine-tune one's arguments (which in turn enhances the leader's ability to persuade or influence). Examining specific outcomes within clusters, as well as the relationships between outcomes (as discussed in the spanning analysis section of the results chapter) thus satisfies the condition of specificity.

We also achieve a deeper understanding of theoretical constructs if we are able to identify how they relate to each other. This condition is satisfied by two processes in this study. First, the interpretation conducted by the board of directors identified three underlying regions of constructs. These regions identify relationships between constructs within a given region. For example, the communication skills, developing leadership skills, and networking, relationships and teams constructs are all related to each other in that they all involve skill-building. Broadened knowledge/awareness and political awareness are related to each other in that they both involve expanding the participants' knowledge of subject areas relevant to the context of the program. And recognizing leadership styles, personal development, and challenges and expectations are all related constructs in that they involve reflection, or thoughtful consideration of lessons to be learned from various program experiences.

The second process that explicates relations between constructs is the bridging analysis of clusters (and the bridging analysis of points across clusters). By definition, clusters (and statements) with high bridging values are strongly related to respective clusters or other statements. For example, the networking, relationships and teams construct is strongly related to all of the other constructs identified in this study. Political awareness, on the other hand, had the weakest relative relationship to any other construct. Interpreting and analyzing the data as described above satisfies the condition of explicating the relationships between constructs.

Finally, our understanding of theoretical constructs is enhanced if we can relate them to observables. As discussed above, there appears to be strong agreement between the program as intended (i.e. the desired outcomes as identified by program management through the strategic plan) and the program as experienced (i.e. the outcomes realized as perceived by program alumni). Such agreement constitutes a *program pattern match* (Trochim, 1985). Though beyond the scope of the present study, further research is recommended that would measure actual outcomes (i.e. go beyond identifying outcomes as perceived by program alumni), allowing us to link the constructs identified in this study to measured results. Trochim (1985) calls this an *outcome pattern match*. This recommendation is elaborated in the evaluation discussion that follows.

Program theory. LEADNY is first and foremost a skill development program. The results of this study support that assertion by virtue of the facts that a) three of the eight constructs identified were skill related, b) these constructs were centrally located and closely related to other constructs around them in the theoretical framework, c) these constructs encompass the greatest number (n = 56) of individual outcomes identified by program alumni, and d) two of these three constructs were rated as the most important constructs in the overall framework. The individual skills identified in the constructs may be specific in nature (e.g. statement 75 "learning how to ask good questions"), or more general (e.g. statement 34 "increased ability to consider issues from multiple perspectives, different levels, or differing points of view"). Emphasis is made on the complexity, inter-relatedness, and highly social nature of many of the skills that are developed.

An explanation of how skills might be developed in the LEADNY program is warranted. For illustration purposes, improvement in public speaking (or presentation)

skills is used as an example[30]. At the very first session, all class members give a ten-minute self-introduction (using a visual aid) that is video-taped. The following month, a trainer works with the class on how to organize and deliver a five-minute persuasive speech. Part of this workshop involves watching and critiquing a few sample speeches. Over the course of the next two months, class members are expected to conduct research on their selected topic, organize their material, and practice their presentations. Supplementary reading material is assigned. Class members then deliver their persuasive speeches, which are timed and video-taped, to their classmates and the trainers that conducted the workshop. Each class member receives feedback on their presentation. At the end of the three-day workshop, a debriefing discussion is held, during which class members reflect on the overall session, including the public speaking portion. Often, a comment from one class member will cause others to gain new insight into one or more of the activities of that session. Following the session, class members are asked (via open-ended evaluation questions) to reflect (in writing) on what they learned from the experience and how they might apply what they learned to their own positions. All evaluation comments are shared with the entire class, which encourages further reflection on what might be learned from the activity.

Over the course of the entire program, class members have at least three more opportunities to make public presentations: each participates in a practice debate (also video-taped), each is responsible to facilitate at least two workshops (during which they introduce and thank speakers, and moderate the session), and each makes a final, five-minute project presentation at the end of the program (also video-taped). In addition, each class member has multiple opportunities to make impromptu public comments during session discussions. At the conclusion of the program, each class

[30] Kouzes and Posner (1997, 2002) suggested that we can learn how to lead through education (formal instruction), example (learning from others), and experience (practicing leadership ourselves). As this example illustrates, LEADNY makes use of all three approaches.

member is given the video recording of their presentations, so they can see the improvement that takes place over the course of the program.

As the preceding example illustrates, LEADNY's skill-building activities are generally not "one-shot" endeavors. Rather, they are repetitive, cumulative exercises involving not only in-class instruction, practice, and feedback, but also out-of-class homework and continuous reflection. The order in which training takes place is purposeful in that one skill will often build upon another (e.g. the debate training follows the persuasive speaking training, each involving organized presentations to present a more persuasive argument). Figure 5.1 presents a model[31] of how the adult learning process is viewed by LEADNY program managers.

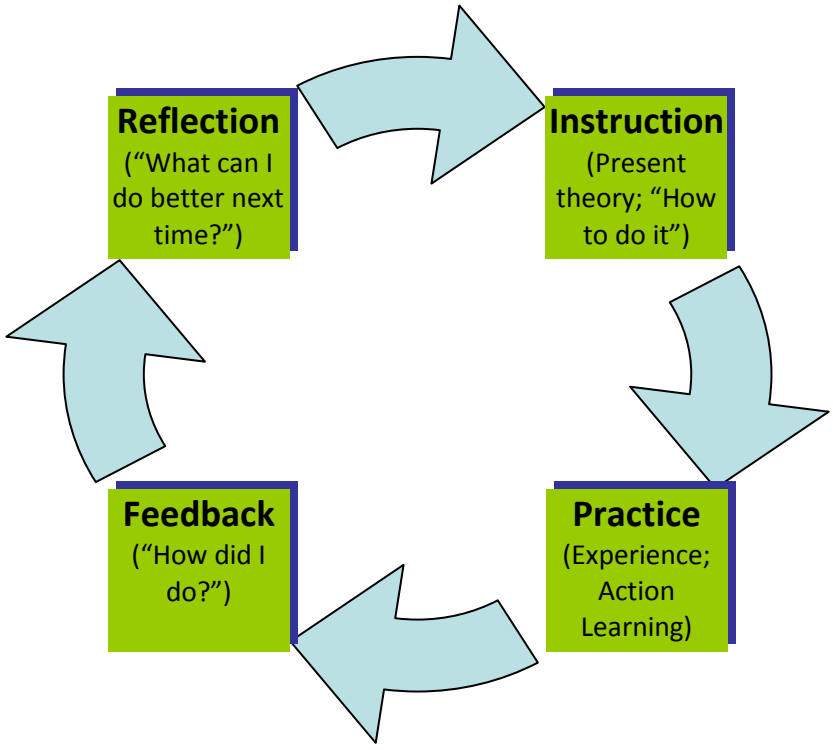

Figure 5.1 The adult learning process in LEADNY

[31] Though not based on a single, specific model of adult learning theory, this model carries elements of the Adaptive Learning Cycle offered by Daft (2005, p. 599), the Experiential Learning Cycle offered by Kolb (1984), the Leader Development Model offered by Van Velsor and McCauley (2004), and is consistent with the theories of how leaders learn presented by Kouzes and Posner (1987, 2002).

If we allowed this skill development function alone to define our program theory, then the LEADNY program could be said to adhere to the broad category of early leadership theories (including trait, behavioral and contingency theories). Lowe and Gardner (2001) made the general observation that the appeal of such early theories appeared to be waning in the leadership literature. Russell and Kuhnert (1992, as cited in Lowe & Gardner, 2001) accused leadership development initiatives of focusing their training efforts on transactional behaviors (i.e. adhering to behavioral and contingency approaches to leadership) because they were easier to train, despite evidence that newer, transformational leadership approaches might result in higher levels of effectiveness. Zaccaro and Horn (2003) added that many LDPs are over-reliant on hierarchical skills training (i.e. those transactional skills used in command-and-control environments). Does this suggest that LEADNY is "behind the times" in its skill-based approach to leadership development?

On the contrary, the results of this study help reframe the discussion regarding the importance of skills and skills training in LDPs. True enough, this research suggests that (individual) skill development is an important aspect of the LEADNY program. However, the *primacy* of the networking, relationships and teams construct (and to a lesser extent the communication skills construct) suggests that the skills being developed in LEADNY are highly *social* in nature. Though he was critical of "traditional" leadership development initiatives that focused strictly on skill-building, even Day (2000) acknowledged that "An important goal of networking initiatives is to develop leaders beyond merely knowing *what* and knowing *how*, to knowing *who* in terms of problem-solving resources" and that "networking is about investing in and developing social capital" (p. 596). This is consistent with contemporary theories of leadership (e.g. Relational Leadership Theory, Uhl-Bien, 2006; and Collective Leadership Theory, Friedrich, Vessey, Schuelke, Ruark, & Mumford, in press) that

point to the social and distributed nature of the leadership process (Balkundi & Kilduff, 2006; Day, 2000; Zohar & Tenne-Gazit, 2008).

These results corroborate the growing impact of social capital as a foundation of modern leadership (Balkundi & Kilduff, 2006; Hitt & Ireland, 2002; Van De Valk, 2008), a concept defined around quantifiable networks of relationships encompassing trust and mutual beneficial interaction (Putnam, 1995). Many of the skill-related outcomes identified in this study (especially those in the networking, relationships and teams construct) are skills that help participants build social capital (e.g. statement 17 "development of a diverse network of skilled professionals (and resources) within the broader agricultural industry that can be called upon at any time for assistance").

Furthermore, Antonakis, et al. (2004) championed a resurgence towards skills-based leadership training within the proper social context, and Billsberry (2009) recently suggested "Leadership development is likely to focus on skills that help students [i.e. participants] develop their ability to persuade and inspire people in their own leadership arenas" (pp. 3-4). But as Antonakis, et al. (2004), Billsberry (2009), and Day (2000) have suggested, *context* is important. The results of this study indicate that the LEADNY program *does* consider the organizational environment in which program participants must operate; i.e. context *is* important in the curriculum. This is evidenced by the broadened knowledge/awareness (of food and agricultural system) construct, and to a lesser extent, the political awareness and challenges and expectations constructs. As noted earlier, one board member described the broadened knowledge/awareness construct as "the 'playing field'; the environment in which our leaders must operate and issues they must understand" (e.g. statement 13 "I developed a broader, more complete perspective of NYS agriculture, and learned about many of the issues, obstacles, technologies and practices common to the industry"). Similarly, the political awareness construct can be thought of as understanding the political

environment in which our leaders must operate (e.g. statement 41 "better understanding of how the political process works at the local, state, and federal levels"). To a lesser extent, and though it is located within the reflection region of the concept map, the challenges and expectations construct can also be thought of as understanding the organizational environment in which program graduates must operate (e.g. statement 40 "you find yourself more in demand to serve in leadership positions").

It is not enough that leaders possess desirable leadership skills; they must also have a minimum proficiency of knowledge (though not necessarily be an expert in the field) about the issues they are expected to address. As Day (2000) noted, leadership development involves "building the capacity for groups of people to learn their way out of problems" (p. 582). In this study, it is noteworthy that participants did not identify many specific issues that they felt they had become knowledgeable about (like those identified in the program strategic plan, Appendix H, Section C.c.), but did identify that they had become knowledgeable about (or aware of) a broad array of issues facing their industry. This is consistent with Day's observation; perhaps LDPs do not need to train leaders to be experts in specific issue areas, but rather, with a minimum level of issues awareness groups of leaders should be able to "learn their way out of problems". As the official program name implies (i.e. The Empire State Food and Agricultural Leadership Institute), *food and agricultural industry issues* provide the context in which this LDP operates; they serve as the "ties that bind" cohort members and other alumni together.

The results of this study also point to the importance of *reflection* in the overall theoretical framework. As the model in Figure 5.1 suggests, LEADNY not only

teaches participants how to do something, but we also involve them[32] in doing "it", whatever that may be. By definition then, LEADNY can be thought of as an experiential education or action learning program. And as O'Connor and Quinn (2004) have noted, "the core requirements of action learning are action…balanced with reflective learning" (p. 433) and Day (2000) proposed that "Leadership development is enhanced to the extent that structured opportunities for individual and group reflection are included as part of action learning" (p. 603). Reflection is thus an integral part of the overall learning experience. The recognizing leadership styles construct (e.g. statement 92 "realizing there is more than one 'right way' to lead…" and statement 50 "realizing you can learn from everyone, even if that means learning what not to do") suggests that LEADNY participants may learn from reflecting on the examples set by others (Kouzes & Posner, 2004). The personal development construct (e.g. statement 3 "increased self awareness and modification of my behavior to more effectively interact with others" and statement 117 "increased reflection on personal leadership styles…") suggests that participants also learn from reflecting on their own action learning experiences (Matthew & Sternberg, in press). The instruction - practice – feedback – reflection cycle employed by LEADNY also has a tendency to improve participants' confidence and self-esteem, as evidenced by statements 2, 5, 7, 9,10, 100, and 102. Reflection also plays a part in the challenges and expectations construct, as participants generally become more aware of the expectations others have of them once they graduate.

Van Velsor and McCauley (2004) asked the question: "What develops in leadership development?" (p.12) and suggested answers that fall into three different categories: a) self-management capabilities, b) social capabilities, and c) work

[32] As Confucius suggested in 450 B.C.: "Tell me, and I will forget. Show me, and I may remember. Involve me, and I will understand."

facilitation capabilities. Table 5.1 compares the capabilities that Van Velsor and McCauley suggested should be developed in leadership development initiatives to the constructs and outcomes identified in this study. As Table 5.1 indicates, the results of this study align very closely with the capabilities (i.e. skills) offered by these authors, suggesting that the theoretical framework developed in this study is consistent with and does in fact build upon the work of other scholars.

Table 5.1 Suggested leadership development characteristics (Van Velsor & McCauley, 2004) as compared to LEADNY outcomes

Capabilities to be developed	Addressed by:	
	Cluster #	Statement #
Self-management capabilities		
Self awareness	2, 6	2, 3, 5, 58, 87, 95, 98, 117
Ability to balance conflicting demands	1, 7	32, 35, 40, 44, 80, 83, 105, 110, 111
Ability to learn	1, 2, 4, 6, 8	4, 6, 8, 10, 13, 28, 50, 69, 101, 107, 112, 115
Leadership values	1, 6, 8	18, 26, 51, 52, 63, 92
Social capabilities		
Ability to build and maintain relationships	1, 5, 6, 8	17, 33, 65, 82, 86
Ability to build effective work groups	2, 4, 8	29, 47, 74, 77, 104, 106, 113, 116
Communication skills	3, 4	37, 45, 48, 54, 59, 66, 70, 75, 81, 97
Ability to develop others	1, 2, 5	20, 27, 55, 89, 93
Work facilitation capabilities		
Management skills	2, 3	31, 57, 62, 67, 68, 96, 98
Ability to think and act strategically	2, 3, 5	46, 71, 72, 76, 84, 109, 112
Ability to think creatively	2, 8	22, 23, 34, 64
Ability to initiate and implement change	2, 6	16, 21, 24, 25, 61, 79

The theory in sum. While skills-based leadership training may be viewed as "old school" by some leadership scholars, the results of this study suggest that skill training remains a central component of the LDP in question. But rather than viewing leadership as a simple set of skills to be mastered, the results of this study suggest that the skills participants learn are highly interrelated, context dependent, and socially complex. The paragraph that follows is an attempt to provide a parsimonious description of the LEADNY program theory developed as a result of this study.

LEADNY is a leadership development program for adult professionals in the food and agricultural industry. We define *leadership* as a social influence process for change. The program improves participants' leadership skills through an experiential education/action learning process that includes instruction, practice, feedback and reflection. Skills that are developed include a) network-, relationship-, and team-building skills, b) communication skills, and c) other skills (e.g. critical thinking) useful in leadership processes. In improving their competency in these skill areas, participants become more effective at influencing others to bring about change in organizations. Participants also develop a broader knowledge/awareness of relevant issues, with the food and agricultural industry, and to a lesser extent the public policy arena, serving as the context in which this leadership development takes place. Outcomes go beyond mere skill improvement, however. The program builds social capital, a resource that can be drawn upon long after completion of the program. Participants learn to appreciate diversity and the new perspectives it offers. Participants also gain confidence in their leadership abilities, and are often inspired to serve in leadership roles. Finally, participants realize the importance of life-long learning, practice ongoing reflection, and seek out new opportunities to continue their leadership development.

Methodological Questions: CM as a Conceptualization Tool

CM as Applied in this Context

The first methodological question posed for this study was "How well does Trochim's (1989a, 1989b, 1989c) structured conceptualization method, concept mapping, function as a theory development tool (as applied in the context of the LEADNY program)?" A detailed description of how this method was applied in this study was provided in the methods chapter of this dissertation. What follows is

therefore a brief summary; the researcher's reflections on how the method worked in this application.

As noted in the introduction, the researcher is both a LEADNY alumnus and the current program director. As such, I am intimately familiar with day-to-day program operations and overall program management, and I also play a significant role in setting program direction. As Russon and Reinelt (2004) noted, however, though program managers undoubtedly have *implicit* theories of how their programs should operate, few have an *explicit* program theory to guide their work (an accurate description of my own role and the LEADNY program). This study forced me (and other program stakeholders, e.g. the board) to develop that explicit program theory. Perhaps being so integrally involved in the day-to-day operations of our programs prevents program managers from "seeing the forest through the trees"; i.e. we fail to devote enough attention to thinking deeply about our overall aims because we are so focused on the immediate issues that arise in our work. This research certainly forced me (and the board) to take a step back and consider our overall aims once again.

CM also extends the conceptualization role beyond the program director to other program stakeholders. The program theory that results is therefore not limited to just the perspective I bring to the study, but encompasses the perspectives of board members and program alumni as well. Via the initial interpretation session, board members have already been exposed to preliminary data analysis for this study, and have indicated their expectation that findings from this study might be used to enhance the program through improved planning and evaluation (see the programmatic questions discussion that follows).

Participants included alumni from every cohort, geographic region, employment group, gender, and educational level encompassed by the program. No reports were received from any participant that would indicate difficulty in

participating (e.g. no alumnus reported having difficulty accessing the web-based rating forms or completing the paper-and-pencil instruments). This was an efficient means to collect data from a geographically dispersed, diverse population.

Advantages and Disadvantages of CM

The second methodological question posed for this study was "What strengths and weaknesses might be identified in the use of this method for theory development?" This study suggests that CM methodology offers several advantages, but has drawbacks as well.

Because concept mapping projects constitute a form of participatory action research (and utilize stakeholder input), the technique may help us overcome "practitioner mistrust for the processes and outcomes of basic research" (Zacarro & Horn, 2003, p. 778). And as Trochim (1989a) pointed out, CM "expresses the conceptual framework in the language of the participants rather than in the terms of…the language of social science theorizing" (pp. 15 - 16). This work may therefore more readily gain acceptance among other LDP practitioners due to the way in which the theory is derived.

The steps that are typically followed in a CM project are well defined (Kane & Trochim, 2007), but that is not to say that all CM projects need be identical. CM has been used for needs assessment, developing logic models, strategic planning, and program evaluation purposes, to name a few. Other scholars and LDP practitioners could easily adopt such structured conceptualization methods to address their own specific needs and research. For example, one practitioner may emphasize the use of CM for strategic planning purposes, while another may use it primarily for program evaluation. Participants in such projects may include program alumni and board members (as was the case in this study), but may also include current cohort members, spouses, co-workers, direct reports, employers, and/or supervisors as sources of CM

data. For example, rather than have LDP participants identify or rate the outcomes of their participation in a given program, employers of LDP participants may be asked to identify and rate the value of program outcomes.

Several drawbacks to utilizing this method can also be identified. First, utilizing the proprietary Concept System software requires several days of training. Not only does this training involve some expense, but licensing the software for use in a project may also be costly, depending on the scope of the project. Printing, postage, travel and meeting facility expenses may also put the cost[33] of this methodology beyond the reach of some researchers.

Data collection can be time consuming. Though collecting rating data via the web-based instrument was efficient, mailed rating responses had to be manually entered into the database by the researcher. Furthermore, statement generation (i.e. brainstorming) and sorting activities were conducted in face-to-face meetings, which involved a significant time commitment – the researcher had to travel to various parts of the state on several different occasions to conduct these focus group meetings. Researchers considering this method must therefore be prepared to invest adequate time and financial resources to apply CM methods in their own studies.

Ensuring adequate participation by various stakeholders in any phase of the project can also be a challenge. Though it was determined that the final statement set adequately covered the outcomes of participation in the LEADNY program, these statements were generated by just eight percent (n = 25) of the overall alumni population. Likewise, though 26 percent (n = 28) of the alumni invited to participate in the sorting process did so (a good response rate), it could be argued that certain demographic groups (e.g. producers and agribusiness employees) were under-

[33] Providing an accurate, total cost for this study is problematic, due to the fact that some fees were reduced (e.g. software licensing) and others costs were embedded in program operating expenses (e.g. postage for alumni mailings). It is estimated that total cost for this project was well below $10,000.00.

represented in the sorting process (as compared to the "other" employment category). Thus, other researchers employing this method would do well to ensure that they have adequate representation across all salient (e.g. demographic) groups.

Despite these challenges, consideration of this method by other researchers in similar settings is warranted. If this conceptualization method were to be applied to other, similar contexts (i.e. other comparable LDPs) and if the results of those studies were to yield a similar theoretical framework, then the results of this study would be corroborated (or not, as the case may be). As Bryman (2004) pointed out, many leadership researchers fail to build sufficiently on the earlier work of others, and adoption of this method to conceptualize program theory in similar contexts would be a step towards addressing that problem.

Programmatic Questions: Planning and Evaluation

Utility for Program Planning

Of immediate utility and interest to program management, results of this study may be used to inform curriculum revision and other program improvement efforts conducted by the staff and board of directors. The first programmatic question posed for this study was "How might participant ratings of outcome importance and feasibility inform program development and implementation?" Program managers intend to take up this question in earnest at their September 2010 board meeting. The following paragraphs suggest how these results might be used for planning purposes.

Figure 4.10 presented a comparison (in the form of a ladder graph) of outcome importance and feasibility *at the cluster level*. With the exception of the communications skills and broadened knowledge/awareness clusters[34], the rank order of clusters on both scales (importance and feasibility) was virtually identical. What

[34] As a group, communication skill outcomes were rated as more important but less feasible than broadened knowledge/awareness outcomes.

this suggests is that constructs generally considered to be more important were also viewed as relatively more achievable sets of outcomes. In broad terms, this directs program managers' attention to the more important constructs in the LEADNY program.

For detailed action planning (i.e. *at the individual outcome level*) it is useful to break the rating results out graphically by cluster. Typically this is done using "go-zone" plots of the type shown in Figures 4.11 and 4.12. The researcher can prepare a go-zone plot for each of the clusters identified in this study, where each statement point is plotted on a two-dimensional graph, one axis representing importance and the other representing feasibility. Program managers can then focus attention on outcomes that are both important and feasible (i.e. those in the upper-right quadrant of the graph; the "go-zone") and limited resources (e.g. money, training time) can be diverted from less important or less feasible areas. For example, in the developing leadership skills cluster (Figure 4.11), statement 42 ("enhanced ability to do fundraising for other programs") was rated as both relatively unimportant and not feasible. Program managers may therefore wish to reconsider the value of bringing in a fundraising trainer to teach cohort members how to do fundraising work (a current component of the program). On the other hand, the three most important statements in this cluster (statements 22, 34, and 64) – as well as several important statements in other clusters – all suggest that learning to appreciate diversity is a critically important and inter-related set of outcomes in the overall program. The point for program managers, then, is that we must continue to emphasize diversity in both our recruitment efforts (leading to diversity in cohort membership), and in the speakers, tours, and issue perspectives[35] that are built into the curriculum.

[35] For example, the program director can actively seek out speakers that will challenge class members' paradigms on a given topic.

The preceding discussion uses just one construct as an example, but it should be obvious that similar analyses could be performed for each of the constructs identified in this study. Analyzing each construct in this way will facilitate the development of a prioritized list of action steps. As Kane and Trochim (2007) explain:

> For action planning, the concept map is a way to link strategy and action in a hierarchical fashion. At the highest level of generality are the clusters on the map. Within the clusters are the specific map statements, the point map. To some or all of the statements one can attach another layer of the hierarchy, specific action steps. Each action step can have additional information attached to it… (p. 136)

Concept mapping also facilitates the organizing and synthesis of data for report writing and presentation. For example, cluster maps and construct descriptions from this project may be used to develop promotional literature for the program, reports to various stakeholders (e.g. college administrators and program funders), or to revise the program strategic plan. Describing the intent and content of a program as complex and intensive as LEADNY to potential applicants and donors has always been challenging. The visual nature of concept mapping results may present a suggestive, stimulating and interesting alternative to text or tabular presentation of program data (Kane & Trochim, 2007).

A Guide for Future Theory-based Program Evaluation

Trochim (1999) used the metaphor of a cartographer to describe the role of a program evaluator, suggesting that like cartographers, evaluators using concept mapping methodology create maps that guide observation and measurement, and use the maps to assess progress that is being made toward desired outcomes. The second programmatic question in this study asks: "Can the constructs that are identified (and subsequent theoretical framework) be utilized to guide future (proposed) program

evaluation efforts?" The concept map provides a framework that can be linked to program activities, measures and outcomes (Kane & Trochim, 2007), which can in turn guide subsequent evaluation efforts (Galvin, 1989). This approach to program evaluation directly addresses calls for more theory-based evaluation (e.g. Bickman, 1987; Chen, 1990; Chen & Rossi, 1989; Kolb, 1991; Rogers, 2007; Weiss, 1997) and it addresses (in part) the concern that scholarly evaluation of LDPs has been lacking (Mason & Wetherbee, 2004; Russon & Reinelt, 2004). This study not only served as a process evaluation of the LEADNY program, but it also establishes the framework for future outcome evaluations.

Process evaluation. Among other things, the analysis conducted in this study compared[36] intended outcomes (as described in the program strategic plan) with outcomes as experienced by program alumni (identified though the concept mapping process). This analysis, together with the data interpretation session conducted with the program board of directors, served as a process evaluation of the program. The comparison between intended and experienced outcomes (see Table 4.4) suggests that the program is being implemented as intended. The discussion surrounding this process evaluation also addresses the "black box" evaluation concerns expressed by Bickman (1987), Chen and Rossi (1983), Kolb (1991), and Grayson (1992).

Outcome evaluation considerations. Though this study did not include *assessment* (i.e. measurement) of outcomes, it does lay the groundwork for outcome evaluation, and there are numerous possibilities for evaluation design. The evaluator will need to make several decisions regarding evaluation design, and the paragraphs that follow discuss these considerations and the possibilities that exist for future outcome evaluations.

[36] See the results chapter section "Agreement with Stated Program Objectives" and Table 4.4, "Intended outcomes compared to outcomes as perceived by participants"

One decision that will need to be made is to determine the *range of outcomes* that the evaluator wishes to measure. In other words, an evaluation project could be conducted that attempts to measure *all* of the outcomes identified by this concept mapping project, or the evaluator could choose to focus on *one* construct (e.g. networking, relationships, and teams) in an effort to thoroughly assess that set of outcomes, presumably developing a deeper understanding of that particular construct within the overall theoretical framework. Taking this point even further, an evaluator may be interested in assessing a very specific, limited set of outcomes (e.g. improvement in public speaking skills). The concept map developed in this study provides a sensible depiction of the overall theoretical framework of the program, and evaluators can select from among elements in the map as they design future evaluation studies.

Another decision that needs to be made concerns the *level of analysis*. Will the evaluation attempt to determine program outcomes at the individual, dyad, group/team, organizational, community, or industry level? For example, if analyzing the enhancement of professional networks and relationships, will the evaluator attempt to measure the benefits to the individual actor (i.e. the participant), or will the analysis attempt to determine the organizational benefits of more extensive professional networks? (i.e. How does the participant's employer benefit from a better-connected employee?) A critical mass of LEADNY graduates now work for a select few employers[37]. It should be possible to assess the impact of these LEADNY graduates at the organizational level, especially if matched comparison groups (i.e. substantially equivalent employees that did not complete the LDP) are used for the analysis.

The evaluator should also consider the *time horizon* to be studied. Though many evaluators express interest in determining long-term, sustained impacts of

[37] For example, 14 LEADNY graduates are currently employed at one large financial institution.

leadership development interventions, most evaluations ultimately examine only short term outputs and outcomes (Lowe & Gardner, 2001; Russon & Reinelt, 2004; Van De Valk & Constas, in press). Many LDPs (the present program included) have been in existence for nearly 30 years now (International Association of Programs for Agricultural Leaders, n.d.), so it should be possible for evaluators to examine some of the long-term effects of these leadership development interventions. Of course, such longitudinal evaluation has challenges (e.g. history, maturation and attrition effects) but they are not insurmountable. An assessment could be designed that specifically measures the sustainability of outcomes over the longer-term. For example, statement 4 ("recognizing the importance of life-long learning and forcing yourself to set aside the time to learn") could be assessed by measuring how much time earlier cohort members have devoted to professional development since program completion.

Outcome evaluations will also be enhanced through broadened *data collection methods*. Most authors (e.g. Collins & Holton, 2004; Hattie et al., 1997; Lowe & Gardner, 2001; Mason & Wetherbee, 2004; Russon & Reinelt, 2004; Van De Valk & Constas, in press) agree that previous LDP evaluation research has been over-reliant on self-report data collected from program participants. Evaluators should collect more data from employers, coworkers, subordinates, spouses, and other observers. It is possible that involving these other audiences in a CM process may identify other constructs missed by the current study. Evaluators may also collect data by mining secondary sources (e.g. employee performance review documentation) for information that informs the evaluation process. Once again, the constructs and outcomes identified by this study tell the evaluator what to look for in these other data sources. For example, statements 104 and 116 both point to the importance of teambuilding and teamwork in the workplace; so mining of secondary data sources might include an

analysis of performance appraisals and/or subordinate feedback that suggests the individual's teambuilding behaviors have improved.

Evaluators can also explore ways to increase *sample sizes*. Because many LDPs are conducted with cohorts of 20 to 40 people (Hattie, et al., 1997), and cohort members are often the unit of analysis, many LDP evaluations are plagued by small sample sizes (Collins & Holton, 2004). If this research is replicated by other, similar LDPs (as discussed previously, the methods employed in this study should be easily replicable in other settings), and if similar constructs (and outcomes) are identified by those studies, then future outcome evaluations might use a national sampling frame. In other words, with nearly 40 similar programs in existence, future outcome evaluations might sample from alumni of all of these programs, and have larger numbers of participants to work with.

Evaluators can also build upon previous *methodological approaches* to LDP evaluation. Most LDP evaluations have adopted mixed-methods approaches (Lowe & Gardner, 2001; Russon & Reinelt, 2004; Van De Valk & Constas, in press), collecting and analyzing both quantitative and qualitative data. However, few have adopted a rigorous approach to analyzing qualitative data (e.g. participant responses to an open-ended focus prompt), as this study has done[38]. Furthermore, few quantitative approaches have offered much more than descriptive or simple inferential statistics (Russon & Reinelt; Van De Valk & Constas). In this study, a two-tailed *t*-test was used to analyze the sort differences between groups based on type of employment (see the cluster analysis section of the results chapter). Of course, other quantitative analyses could also be performed in future outcome evaluations. The primary quantitative analysis used in this study (multi-dimensional *scaling*) - and the detailed

[38] For example, the software used in this study includes proprietary mathematical algorithms that identify the closest fitting sort group labels for any given cluster.

content provided via concept mapping - facilitates the development of measures and scales (Kane & Trochim, 2007). The final cluster map resulting from this study can guide measurement development; each cluster being viewed as a measurement construct and each statement suggesting specific operationalizations of measures within constructs (Trochim, 1989a). The evaluator could develop a new survey instrument designed to measure specific outcomes, or in some cases (e.g. measurement of network connections or social capital) may adapt an existing measurement instrument[39] if it suits the needs of the evaluation. The important question is, of course: "How do we best measure the outcomes?" Using multiple methods (e.g. survey questionnaires, mining data from secondary sources, observation) provides the added benefit of facilitating the triangulation of data and the potential to strengthen resulting conclusions.

In LDP evaluations, a pattern matching approach may be more useful than traditional research methods that take a relatively narrow hypothesis testing approach. Outcome pattern matching looks for *patterns* of effects (often across a number of measures or variables) and seeks to match those to equally complex theoretically expected patterns (Trochim, 1989c). In such studies, even with non-significant *t*-values or low statistical power, we may still detect a *pattern* of effects (Caracelli, 1989; Trochim, 1989c). Chatterji (2008) added "…the better designs for impact evaluations are developmental and systemic and examine multiple causal influences guided by the program's theory and underlying logic, rather than examining just a singular link between a program and an outcome" and "Designs that recognize multiple causation as a part of studying a program systemically in its natural

[39] For a review of the literature on the measurement of social capital see Hean, Cowley, Forbes, Griffiths, & Maben (2003) and Lochner, Kawachi, & Kennedy (1999)

ecosystem will likely yield a better grade of evidence" (p. 25). Concept mapping facilitates such a pattern matching approach to program evaluation.

Generalizing to other settings. Finally, a brief discussion of the potential for generalizing to other, similar LDPs is warranted. Though this study did not use a representative sample of a larger population, the concept of *proximal similarity* (Campbell, 1986) suggests that the findings of this study (and perhaps subsequent outcome evaluation results) may be generalized to other similar LDPs:

> When it comes to disseminating a new ameliorative program of local molar causal validity, we will apply it with most confidence where treatment, setting, population, desired outcome, and year are closest in some overall way to the original program treatment. (Campbell, 1986, pp. 75-76)

Currently, there are approximately 39 domestic and five international LDPs that are similar to the LEADNY program (International Association of Programs for Agricultural Leaders, n.d.), and at least 33 of these (28 domestic and 5 international) are similar in their composition, context, support sources, participants (i.e. industry representation), and intended outcomes (Helstowski, 2000). Thus, depending on the similarity of a given program to the present context, the findings of this study may have applicability to other programs as well. Of course, the conclusions of this study (e.g. leadership development constructs identified) would be strengthened if replicated by other researchers, and the structured conceptualization method adopted here could be readily adopted in other, similar program settings.

Conclusion

I came to this project occupying two roles. One was that of scholar-researcher; eager to improve my understanding of leadership, leadership development, and how we might better conduct scholarly evaluations of leadership development programs. The other role was that of practitioner; grounded in a specific context, focused on

delivering tangible results (insights, recommendations, evidence) to my program stakeholders and peers, and ultimately desiring to improve my own performance as a leadership educator. The research offered several distractions (or alternative paths to be explored). For example, despite decades of research and scholarly writing on leadership, as a "new" student I learned that the field of leadership studies is complicated indeed; after all, even leading scholars struggle to define the term, much less agree on how we might achieve our desired outcomes (i.e. improved leadership in organizations). Likewise, despite the fact that volumes have been written about program evaluation, a clear-cut path toward scholarly leadership development evaluation was elusive, at least early in the process.

Ultimately, the method I chose (Concept Mapping) offered a means to help make sense of a common but poorly defined field of practice (leadership development) – it is a structured conceptualization method, after all. And while my work is not yet complete (outcome assessment still needs to be done), I believe this dissertation makes a significant contribution to those facing similar challenges.

I have identified key constructs and even specific outcomes (operationalized in a specific context), used those constructs to develop a theoretical framework for the leadership development initiative in question, and suggested how this framework might be used to guide program planning and evaluation efforts. The theory that I offer, though skills-based, is richer and more complex than earlier leadership theories that took a rather simplistic view of the skill-building function of LDPs. Furthermore, my theory builds upon the work of previous scholars and reinforces the idea that reflection is an important component of the leadership development process. My hope is that future researchers will be able to build on the body of work that this dissertation represents.

APPENDIX A

INFORMED CONSENT FORM

You are being asked to take part in a research study about the outcomes of participation in a leadership development program (LDP). I am asking you to take part because you are an alumnus of the LEAD New York Program. Please read this form carefully and ask any questions you may have before agreeing to take part in this study.

What the study is about: The purpose of this study is to identify outcomes of participation in leadership development programs.

What I will ask you to do: If you agree to be in this study, you may participate in either one or both phases of the study. Phase one will involve generating a list of statements (i.e. brainstorming) that identify outcomes of participation in an LDP. These brainstorming sessions will last approximately two hours. Phase two will involve sorting into groups and ranking those statements. This sorting process will take place during October and November of 2009, and can be done as a web-based activity or via a paper-and-pencil instrument. It should take no more than one hour to complete the sorting exercise.

Risks and benefits: I do not anticipate any risks to you participating in this study other than those encountered in day-to-day life. There are no benefits to you, other than sharing in the knowledge that may be gained from the findings of this study.

Compensation: There will be no compensation for participation in this study.

Taking part is voluntary: Taking part in this study is completely voluntary. You may participate in phase one, phase two, or both phases of the study. You may drop out of the study at any time. If you choose not to participate in the study, it will not affect your relationship with the LEAD New York Program.

Your answers will be confidential: The records of this study will be kept private. In any report I make public (e.g. a journal article or dissertation) I will not include any information that will make it possible to identify you. Research records will be kept in a locked file; only the researcher will have access to the records. If I tape record any brainstorming session or follow-up interview, I will destroy the tape recording after it has been transcribed, which I anticipate will be within two months of its taping.

If you have questions: The researcher conducting this study is Lawrence Van De Valk. Please ask any questions you have now. If you have questions later, you may contact Larry at ljv4@cornell.edu or 607-255-6891. If you have any questions or concerns regarding your rights as a subject in this study, you may contact the Institutional Review Board (IRB) at 607-255-5138 or access their website at: http://www.irb.cornell.edu. You may also report your concerns or complaints anonymously through Ethicspoint by calling toll free at 1-866-293-3077. Ethicspoint is an independent organization that serves as a liaison between the University and the person bringing the complaint so that anonymity can be ensured.

Statement of Consent: I have read the above information, and have received answers to any questions I asked. I consent to take part in the study. You will be given a copy of this form for your records.

Your signature: _____ Date: _____

Your name (printed): _____

Signature of person obtaining consent: _____ Date: _____
Printed name of person obtaining consent: Lawrence J. Van De Valk
This consent form will be kept by the researcher for at least three years beyond the end of the study.

APPENDIX B

INVITATION LETTER TO BRAINSTORMING SESSIONS

To: All LEAD New York Alumni

From: Larry Van De Valk, Director

Date: June 30, 2009

Re: Invitation to participate in research study

I am writing to invite you to participate in a research study pertaining to the LEAD New York Program. The purpose of this study is to identify specific outcomes of participation in leadership development programs like LEAD New York. A mixed-methods, participatory research approach called "concept mapping" will be the primary methodological tool used for this study.

The purpose of this letter is to invite you to participate in phase one of the study – brainstorming sessions. These brainstorming sessions will be conducted at several locations, as follows:

Tuesday, July 14, 4:00 – 6:00 pm	**Noblehurst Field House, 7955 York Rd. Pavilion**
Wednesday, July 15, 3:00 – 5:00 pm	**CCE of Cayuga County, 248 Grant Ave., Auburn**
Thursday, July 16, 3:00 – 5:00 pm	**Cargill, 8 Southwoods Blvd. 4th Floor, Albany**

The purpose of these brainstorming sessions will be to generate a list of outcomes of participation in leadership development programs. These statements will be generated by study participants (you) based upon a specific focus prompt, which will be explained at the brainstorming session. You would not need to do anything to prepare for the brainstorming session.

If you can attend one of these sessions, please let the LEAD office know so that we can plan appropriately for the number of people at each location. You can contact either Larry or Kristen at:
Larry Van De Valk, ljv4@cornell.edu, 607-255-6891 (office), or 607-220-6155 (cell)
Kristen Ciferri, klc43@cornell.edu, 607-255-7907

Phase two of the study will take place during October and November, and will involve a web-based sorting and ranking process of the statements that are generated during the brainstorming sessions. It will not involve any face-to-face meetings; participants may complete either a paper-and-pencil instrument or a web-based survey. More details and a separate invitation will be mailed to you in September.

Note that you may participate in either phase of this study, both phases, or not at all. Your participation is completely voluntary. Should you choose to participate, in addition to helping me with my dissertation research, your participation may ultimately lead to program improvements, so I hope you will give serious consideration to this request. If you have any questions, please don't hesitate to contact me. Thank you.

Sincerely,
Larry Van De Valk

APPENDIX C

STATEMENT GENERATION FORM

Please return to Larry at the conclusion of the Brainstorming Session

Please review the focus prompt below and generate brief phrases that complete the statement from your point of view. Please spend a moment to think about outcomes that others might not think to include. You can write down up to ten ideas on this form; please try to provide at least five. In a moment, each of you will be asked to share some of these ideas with the rest of the group. If you have any questions, please don't hesitate to ask. Thank you for your participation.

"One specific consequence of participation in a high-quality leadership development program is…"

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APPENDIX D

COMPREHENSIVE BRAINSTORMING STATEMENT LIST

"One specific consequence of participation in a high-quality leadership development program is…"

1. you become more aware of legislation affecting your industry
2. you critique others in leadership positions
3. you think about how you impact coworkers
4. you look for other, similar (leadership education) opportunities
5. you become dissatisfied with leadership in your business
6. developing a professional network
7. my experiences and knowledge of other cultures has grown
8. I am more confident in calling myself a leader
9. I became a member of an Ag. Advisory committee
10. I have something to put on a resume
11. I have a broader awareness of NYS agriculture
12. I learned about other issues facing NYS agriculture
13. I met people I would not have otherwise met
14. a tendency toward feeling "superior" to others
15. the ability to accept alternate perspectives
16. a willingness to participate more fully in local community
17. the development of an increased self-awareness
18. changing the way a person thinks about leadership positions
19. that it provides participants with specific tools and skills that impact leadership performance (i.e. public speaking, writing skills, etc.)
20. participants think more critically about sources of information
21. individuals learn to practice using tools that increase productivity at work and at home
22. individuals are more aware of resources that can assist them with future projects
23. increased community involvement
24. modeling leadership to others
25. working toward progress as opposed to stagnation
26. overcoming/adapting to/embracing change
27. more inclusive problem solving
28. improved self confidence in making a difference
29. more ethical decision-making
30. encouragement of people who have much to offer (hidden gifts)
31. increased buy-in during decision-making or change efforts
32. intense level of commitment to the program by individual participants
33. more reflection on personal leadership styles
34. consider positive and negative aspects of individual leadership styles
35. a significant level of personal growth
36. bypassing or moving beyond current work place team philosophy
37. the development and proliferation of new civic groups, agricultural organizations, forums, and mentoring bodies
38. learning that taking a leadership role in an organization requires no more than a belief that you can succeed at making a difference
39. improved ability to deal with difficult people
40. improved ability to deal with controversial/difficult subject matter
41. learning about agriculture from different (e.g. industry, government, consumer international and local) perspectives
42. development of a diverse network of skilled professionals within the broader Ag industry
43. strain on the management capabilities of the attendee during the program
44. increased knowledge about how the political process works at the local, state and federal levels

45. realizing that you can help others understand the political process
46. giving individuals confidence in themselves
47. more easily recognizing leadership deficiencies in others
48. development of new relationships and friendships
49. increased ability to consider issues from many points of view
50. increased level of confidence and capability in your own business or workplace
51. knowledge about how the political process works at the local, state and federal levels helps you achieve your organization's goals
52. giving individuals a more fulfilling life through education
53. development of networks of specialists you can call upon for problem solving
54. developing self confidence and learning to overcome fears and challenges
55. increased comfort working within the local state and federal political processes to affect change
56. more strain upon a finite source of donor dollars
57. you understand that accomplishing goals may take more time than you first realize and that persistence is a necessary ingredient for change to happen
58. learning and developing the art of persuasion
59. increasing the pool of highly qualified candidates for jobs, boards, task forces, and committees
60. learning that the world is run by those that show up, so leaders need to show up
61. having more agriculturally savvy individuals skilled for public service
62. enhanced ability to do fundraising for other programs
63. you have answers to questions that others without the training would not have
64. having answers to difficult questions makes others look to you as a leader
65. improved listening skills
66. learning the art of conversation
67. increased membership in organizations that you belong to
68. becoming aware of your strengths and weaknesses
69. growth in the number of other rural leadership development programs
70. there is a recognizable "brand" of quality associated with program alumni
71. developing more confidence addressing groups of people in a public setting
72. having contact with people on multiple sides of an issue
73. ability to recognize candidates for leadership development programs (i.e. seeing leadership potential in others)
74. learning to appreciate different opinions or perspectives
75. taking a broader view of an issue or person
76. understanding the importance of bringing the agricultural perspective to the political process
77. general improvement in the quality of public speaking and presentation skills
78. understanding how appearance and mannerisms can influence how others relate to you.
79. the program inspires you to be a leader
80. increased ability to bring divergent groups together on their common issues
81. learning new or refining existing skills
82. finding it difficult to prioritize between leadership and educational tasks associated with day to day work
83. better understanding of how you operate and how to work with those that operate differently
84. you understand that others may have a very different understanding or perception of a topic
85. realizing you have as much to give to the program as receive
86. recognizing the importance of inclusion of agricultural topics in local leadership development programs
87. mitigation of generational leadership gaps that can happen in even the best organizations
88. realizing you can learn from everyone, even if that means learning what not to do
89. realizing that some leaders may exploit other's leadership weaknesses
90. realizing leadership development can be a lifetime commitment of time, money and resources, and you may just want it to be done
91. knowing how to navigate the multitude of agencies involved regulating food and agriculture
92. the spreading of good ideas across a diverse community (or class)

93. learning that you can develop other leaders to relieve you of your leadership responsibilities
94. positive recognition for your business, with employee attraction, recruitment or retention benefits
95. understanding that patience and persistence are essential to effect change
96. exposure to new things outside your comfort zone
97. realizing that failure is not to be feared; it is your response to failure that counts
98. realizing that leadership is hard and sometimes good people will lose faith and disengage
99. knowing conflict and it's resolution are often a necessary aspect of change
100. improving your self esteem upon successful completion
101. learning how to run effective meetings
102. learning how to effectively lobby
103. becoming frustrated when in meetings that are not well run
104. getting to know and work with your congressional staffers (not just your elected officials)
105. learning how to successfully introduce speakers to a group and thank them for their efforts
106. developing an ability to identify leadership/management styles in others and posture your own style to better communicate with them
107. learning how to ask good questions
108. realizing the importance of keeping messages short and to the point
109. learning how to dress appropriately for the occasion
110. learning how to be a good follower or team member
111. learning how to negotiate
112. recognizing how important it is to invest time and effort when a new person comes on the scene (e.g. in a political office or in the media)
113. developing the ability to plan a program, event, class or tour
114. learning how people in other countries perceive Americans or American foreign policy
115. learning how to advocate
116. being able to train others on how to allocate time on meeting agendas
117. learning how to develop an agenda
118. knowing when to keep quiet
119. developing skills to create a vision of the future
120. learning how to put a vision into words
121. learning to respect the needs of a diverse community
122. realizing that if you don't understand something, probably others don't either, so it's OK to ask the question
123. learning how to get your point across working within the framework of the organization
124. assessment of current career or business model to improve same or select and develop another
125. developing a long-term sense of camaraderie and membership in a select group
126. learning to take enough time to evaluate issues before taking a position on them
127. incubation of new ideas
128. developing an appreciation for gourmet food and wine
129. learning to understand the power structure of an organization
130. recognizing the capability/potential to diversify a current business model
131. learning that sometimes the other side isn't wrong
132. recognizing when I backslide into my default or primary leadership style
133. may develop a reckless excess of "can-do" spirit
134. learning that you can like other people without agreeing with them
135. learning how to compromise
136. learning to collaborate with others
137. being able to meet others on their terms through open communication
138. understanding how fortunate we are to be citizens of the USA
139. learning to be mindful of the personal constraints of someone else when you are asking them to take a leadership role
140. understanding how to build and maintain relationships
141. developing the ability to access a network of people with similar interests
142. developing the ability to identify and act upon opportunities

143. understanding your interpersonal preferences and learning to improve weak areas
144. developing an improved Ag-industry perspective
145. as graduate numbers grow, larger scale impacts occur over broader contexts
146. personal development that creates a vision of leadership from an over-arching perspective
147. developing confidence to provide guidance to a group of individuals
148. developing the ability to find solutions in the ideas and cooperation of others
149. developing the ability to inspire others into leadership
150. improved communication, problem solving and leadership skills
151. becoming more open to diverse viewpoints
152. gaining in-depth knowledge about "soft" leadership skills
153. learning to fine-tune statements or arguments around specific issues
154. developing confidence to take on larger projects or issues than you had previously attempted
155. improving approaches to communication in public venues
156. developing an appreciation for excellence and inspiration to do things well
157. you find that your thirst for knowledge is enhanced/increased
158. development of a sense of servant leadership
159. developing the ability to think at different levels at the same time when interacting with someone else
160. recognizing the importance of life-long learning
161. increased awareness of professional skills and how to put them to use
162. practicing reflective consideration of one's profession and/or future
163. find yourself more in demand (to serve in leadership roles)
164. being able to bring an organization through change
165. developing the ability to analyze an issue at a global level and bring that analysis down to a local level
166. the recognition of your responsibility to be involved
167. to be thrust into uncomfortable situations and critique your responses
168. developing expanded social and professional networks
169. becoming more open to personal change
170. developing strategies to implement leadership skills that you learned in both personal and career relationships
171. the program strengthens and or differentiates your resume from others
172. improving strategic thinking/planning
173. developing the ability to share and demonstrate your leadership successes
174. developing an improved local and state government perspective
175. your personal relationships tend to improve
176. being able to assess personalities and strengths within teams
177. becoming frustrated by those around you who now find you "too smart"
178. encouraging others in their own leadership development
179. developing the ability to embrace differing opinions
180. developing a desire to further NYS agriculture and affiliated organizations
181. learning to set an atmosphere for those under you to excel
182. gaining confidence needed to lead an organizational group
183. gaining networking resources for future help/assistance
184. you develop an out-of-state or foreign Ag. industry perspective
185. you tend to put a lot more thought into a concept, idea or project than in the past
186. exposure to excellent leaders or leadership models
187. learn the importance of organized meetings and using an agenda
188. learn how to facilitate a question and answer session
189. gaining a better understanding of government and how it functions
190. learning how to effect political change
191. learning how to have difficult conversations with others
192. developing the ability to assess conflict resolution efforts
193. learning how to dress professionally and act/behave professionally
194. learning how to apply current technologies (e.g. PowerPoint, library searches, etc.)

195. learning not to take things at face value and think critically; to look for accurate information
196. developing better time management skills
197. learning to work more effectively with the media
198. learning about new, cutting edge technologies and practices within the Ag. Industry
199. understanding personality profiles
200. better understanding how to match skills and abilities with roles or positions
201. improved ability to market myself and my organization
202. tendency for over-involvement immediately following participation
203. may become overwhelmed on what to do with what you just learned or experienced
204. exposure to areas that you would otherwise never have been exposed to
205. more exposure to a land grant university and its resources
206. more exposure to NY City (i.e. a large consumer market) than most people have had before
207. developing an increased appreciation for the interconnectedness and complexity of the whole farm-food system
208. exiting the program feeling both empowered and humbled
209. exposing your weak areas
210. enhancing listening skills
211. it broadened the type of reading I did
212. learning how to function with sleep deprivation
213. exposure to different cultures
214. developing a sense of stewardship for your group; intentional care of your team; camaraderie
215. understanding the importance of ongoing self-reflection
216. removing the "fear factor"; enhanced confidence
217. it provides more confidence in taking risk through time
218. recognizing the importance of teambuilding as an intentional activity
219. recognizing the power of teams
220. being able to seize an opportunity in the midst of a crisis
221. organizing, implementing and assessing events; event management
222. developing an understanding of organizational structure and how to work within it
223. improved ability to network; improved people skills
224. increased appreciation for other people's points of view and experience
225. understanding diversity; learning to appreciate another person's situation
226. learning from role-playing
227. developing an expanded sphere of influence both on you and by you
228. exposure to new ideas and ways of thinking about the issues
229. practicing debate skills that allow you to see both sides of an issue
230. improving presentation and organization of thoughts during debates and public speaking
231. increased awareness of your own personality strengths and weaknesses and how they relate to others
232. improved confidence in both written and oral communications
233. improved interpersonal and teamwork skills
234. developing friendships and contacts
235. meeting key decision makers in the industry
236. developing a wide network of peers
237. renewed interest in the future of agriculture through our youth
238. improved communication skills; verbal, written and listening
239. establishment of mentoring and friendship networks
240. deeper understanding of the issues discussed
241. developing an awareness and understanding of connections within the industry; agriculture as part of a complex food system
242. increased participation by alumni in local/community leadership roles
243. developing a renewed sense of importance in balancing family, self, work and community
244. developing a broad, strong and diverse network of friends and associates that can be called on at any time
245. greater ability to think strategically about goals and plans to accomplish those goals

246. developing a desire to continue to learn beyond the confines of the classroom
247. developing a broader knowledge of the value of agriculture, e.g. the social and environmental benefits of maintaining farms
248. improving media communications skill set that works to the advantage of the industry
249. watching and learning from the development of others
250. realizing that there are now high expectations associated with such training
251. developing a better understanding of self; both strengths and weaknesses
252. forcing yourself to set aside the time to learn outside of your normal work environment
253. feeling prepared to become a leader as a result of completing the program
254. making contacts that increase an organization's exposure or workload
255. participation holds me personally to a higher standard every day and in every aspect of my life
256. improving time management skills
257. developing an ability to motivate self and others
258. it forces you to prioritize/manage time in an already busy schedule
259. developing confidence in situations where good public relation skills are required
260. improved conflict resolution skills
261. reinvigorating passion for what you do
262. discovery of new passions or career opportunities
263. forcing myself to think about the other side of an issue and to respond effectively yet respectfully
264. it provides a sense of accomplishment
265. developing tools to better manage your time
266. a realization of the obstacles before us
267. enhanced opportunities for travel
268. improved self awareness that leads to better management of employees
269. recognition of my complacency inspired me to do more and do things differently
270. you become energized/infectious/renewed, and then share that enthusiasm with others
271. developing a better understanding of self; drivers and obstacles, what your limits are
272. improved ability to learn how to analyze federal, state and local programs, and evaluate their effectiveness
273. understanding that the Ag. industry has an impact at the local, state, national and international levels
274. understanding that we as individuals are the face of the industry
275. witnessing first-hand leadership styles at an international level
276. getting exposure to and a better understanding of the "big picture" of the food and Ag. system
277. developing knowledge of where to find and how to utilize resources
278. learning that producers should make or grow what consumers want; don't assume consumers will buy what producers make or grow
279. learning that you have a reserve of energy that you can use when you are engaged in something that is meaningful to you.
280. increased promotion and/or career advancement of participants
281. learning how to communicate or interact with personality styles different from my own
282. realizing there is more than one right way to lead.
283. learning that informal communication that occurs (e.g. carpooling, roommates, hospitality suite) is a tremendous benefit in personal and professional development; creating friendships
284. realizing that unstructured learning time (with classmates) is as valuable as formal learning time with speakers, on tours, etc.
285. improved utilization of skill sets in work, personal life and community
286. the program breaks down barriers of what you think you can do; reduces perceived limitations
287. coping with difficulties of balancing time away from home, family, etc.
288. perhaps the program didn't meet some participant's expectations
289. there is a "let-down" after the program; we need to learn how to maintain momentum (i.e. continued learning) after the program is over
290. deciding how to best use skills learned in the program, and not feel guilty about not accepting a leadership role (i.e. learning how to prioritize your leadership opportunities)

291. tendency towards over-commitment; need to say “no” to some roles
292. sometimes others have an increased expectation of your leadership abilities, roles, etc.
293. realizing that the time and money invested in participation was well worth it; concerns at the start of the program were unfounded
294. recognizing that some people are unable to fulfill the commitment and are unable to finish the program
295. realization that you can be away from work and it will still be there when you get back
296. there seems to be a high incidence of promotions and other career advancements subsequent to participation in the program

APPENDIX E

STATEMENT REDUCTION RULES AND KEY TO COMBINED STATEMENTS

A. Numbers separated by a "+" indicate that the statements were combined to form a new statement
   a. Ex. 14+177 indicates that statement numbers 14 and 177 were combined to form a new statement

B. Two or more numbers separated by a comma indicate that the statements were essentially identical
   a. Ex. 196, 256

C. A number(s) enclosed in parentheses following an "=" indicates that the number(s) in parentheses were adequately represented by the preceding statement number(s). The first numbered statement(s) subsumed the second statement number(s) that are enclosed in parentheses.
   a. Ex. 98 = (90) indicates that statement number 90 no longer exists but was subsumed by statement number 98 which adequately represents the meaning present in statement number 90

Final statement number	Combined (Original) Statement Numbers	Final (Combined) Statement
1.	2+5+47	you recognize leadership deficiencies and become more critical of others in leadership positions
2.	8+147+154+182 = (38)	greater confidence in my leadership abilities, to take on larger projects or issues
3.	17+83+106 = (3, 68, 268)	increased self-awareness and modification of my behavior to more effectively interact with others
4.	160+252 = (52)	recognizing the importance of life-long learning and forcing yourself to set aside the time to learn
5.	85+100+286	reducing perceived limitations (in your abilities); realizing you have much to offer; improved self-esteem
6.	7+128+267 = (213)	my experiences and knowledge of other cultures has grown through enhanced opportunities for travel
7.	28,46,50+259	improved self-confidence at work and in situations where good public relations skills are required
8.	4+157+246	you desire to learn more and look for other, similar (leadership education) opportunities
9.	217+253	feeling prepared to take on leadership roles or take more risk
10.	54+216	learning to overcome fears and challenges
11.	20+195	thinking more critically about sources of information and looking for accurate information
12.	10+171+280 = (70, 296)	the program strengthens and/or differentiates your resume' from others leading to increased promotion and/or career advancement of participants
13.	12+11+41+144+198+266	I developed a broader, more complete perspective of NYS agriculture, and learned about many of the issues, obstacles, technologies and practices common to the industry

14.	14+177	a tendency toward feeling “superior” to others or becoming frustrated by those around you that may feel inferior
15.	277	knowing where to find and how to utilize resources
16.	26	learning to overcome, adapt to or embrace change
17.	22+42+53+244 = (6,141)	development of a diverse network of skilled professionals (and resources) within the broader Ag industry that can be called upon at any time for assistance
18.	23+67 = (16, 242, 9)	increased community involvement and membership in more organizations
19.	24+173	modeling effective leadership and demonstrating your own leadership successes
20.	149+257	developing ability to motivate/inspire others to serve in leadership roles
21.	164	being able to lead an organization through change
22.	72+74+228 = (84, 131, 134, 179, 224, 225)	having contact with people on multiple sides of an issue and learning to appreciate diversity, new ideas and new ways of thinking
23.	25+36	moving beyond the current workplace philosophy; working towards progress as opposed to preserving the status quo
24.	57+95	understanding that accomplishing goals may take a long time; patience and persistence will be necessary to effect change
25.	27+148+31	developing the ability to find solutions in the ideas and cooperation of others; more inclusive problem solving that leads to increased buy-in in decision making or change efforts
26.	29+255	I hold myself to a higher standard every day and in every aspect of my life; I strive to make more ethical decisions
27.	30+73+178	ability to recognize leadership potential in others and encourage them to develop and/or use their hidden talents
28.	35+19+161+150+21 = (81, 285)	a significant level of personal growth that provides participants with specific tools or skills that improve leadership performance
29.	37+69	the development and proliferation of new civic groups, local leadership programs, agricultural organizations, forums, and mentoring bodies
30.	180	developing a desire to promote my industry and affiliated organizations
31.	260+39+40+192 = (191)	improved conflict resolution skills, including ability to deal with difficult people and/or controversial subjects, and to assess conflict resolution efforts
32.	43+82	strain on the management capabilities of the attendee (difficult to prioritize between the training program and work-related responsibilities)
33.	48+13+168 = (183)	meeting people you otherwise would not have met and development of new relationships and

		friendships; expanding social and professional networks
34.	49+159 = (75, 151)	increased ability to consider issues from multiple perspectives, different levels or differing points of view
35.	158+166+250 = (60)	realizing that there are high expectations associated with such training and recognizing your responsibility to be involved, you develop a sense of servant leadership
36.	1	increased awareness of legislative issues affecting agriculture
37.	77+238 = (155, 194)	general improvement in communication and presentation skills
38.	58+111	learning and developing the arts of persuasion and negotiation
39.	59+145	as graduate numbers grow, increasing the pool of highly qualified candidates for jobs, boards, task forces, and committees, larger scale impacts occur over broader contexts
40.	163	you find yourself more in-demand (to serve in leadership positions)
41.	44, 189 = (51)	better understanding of how the political process works at the local, state and federal levels
42.	62	enhanced ability to do fundraising for other programs
43.	165	developing the ability to analyze an issue at a global level and bring that analysis down to a local level
44.	64+292 = (63)	others have high expectations of your leadership abilities and look to you as a leader
45.	66+118+281	learning the “art of conversation”, including knowing when to keep quiet and how to communicate or interact with different personalities
46.	272	improving ability to analyze federal, state and local programs and evaluate their effectiveness
47.	94	improvements in employee recruitment or retention as a result of presenting a positive image of a business or organization
48.	71+232	developing increased confidence in communicating with people
49.	78+109+193	learning how to dress appropriately for the occasion and understanding how appearance and professional behavior can influence how others relate to you
50.	88	realizing you can learn from everyone, even if that means learning what not to do (e.g. learning from examples of bad leadership)
51.	92	sharing/spreading good ideas across a wide community (e.g. class or alumni)
52.	89	realizing that some leaders may exploit other’s leadership weaknesses
53.	91	knowing how to navigate the multitude of agencies involved in regulating food and

		agriculture
54.	65, 210 = (238)	improved listening skills
55.	93+87	learning that you can develop other leaders to relieve you of your leadership responsibilities or mitigate generational leadership gaps that may exist
56.	201+254	opportunities to make contacts and present your business/organization in a positive light (i.e. market yourself or your organization) that increase your organization's exposure or workload.
57.	101	learning how to run an effective meeting
58.	96+167	exposure to things outside your comfort zone and critiquing/reflecting on your responses to that situation
59.	188 + 105	improved facilitation skills (e.g. leading a Q&A session, speaker introductions)
60.	98 = (90)	realizing that leadership is hard and sometimes good people will lose faith, burnout and disengage
61.	99	knowing conflict and it's resolution are often a necessary aspect of change
62.	116+117	learning how to develop an agenda and being able to train others on how to allocate time on meeting agendas
63.	97	realizing that failure is not to be feared; it is your response to failure that counts
64.	15+263	learning to accept or acknowledge alternate perspectives and forcing yourself to think about the other side(s) of an issue before responding
65.	104+55+102 = (190)	getting to know your legislative staffers (in addition to elected officials) and learning how to effectively lobby them
66.	108+153+230	improving presentation and organization of thoughts; learning to fine-tune statements or arguments around specific issues; keeping messages short and to the point
67.	113+221	improving event management skills; ability to plan, organize, implement and assess a program, class or tour
68.	187 = (103)	realizing the importance of having organized meetings and using an agenda
69.	184+267+275 = (114)	exposure to different perspectives and leadership styles through enhanced opportunities for travel
70.	115 = (61, 274)	learning how to advocate for the Ag industry
71.	76+86	recognizing the importance of bringing a level of Ag issues awareness to local leadership programs, the media, politicians, government agency staff, and others in public service
72.	119+120	developing skills to create a vision of the future and learning how to put that vision into words
73.	121+137+263	learning to respect the needs of a diverse community, being able to meet others on their terms through open communication, and

		responding effectively yet respectfully
74.	135+80	learning how to compromise and increasing your ability to bring divergent groups together on common issues
75.	107 = (122)	learning how to ask good questions
76.	172+245	improving strategic thinking and planning; setting goals and planning how to achieve them
77.	125+214+234	developing a long-term sense of camaraderie, friendship and membership in a select group; feeling responsible for the stewardship and intentional care of your team
78.	129+222 = (123)	learning to understand the power structure of an organization and how to work within it
79.	130+124+127	assessing a current business model, incubation of new ideas, recognizing the capability/potential to diversify
80.	202+291 = (133,203)	tendency for over-involvement immediately following participation; need to say "no" to some opportunities
81.	229	practicing debate skills that allow you to see both sides of an issue
82.	175	your personal relationships tend to improve
83.	139	learning to be mindful of the personal constraints of someone else when you are asking them to take a leadership role
84.	142+220	developing the ability to identify and act upon opportunities; to seize an opportunity in the midst of a crisis
85.	146	personal development that creates a vision of leadership from an over-arching perspective
86.	152 = (140)	gaining in-depth knowledge about "soft" leadership skills
87.	162+169	practicing reflective consideration of one's profession and/or future and being more open to personal change
88.	156+269	recognition of my complacency inspired me to do more and do things differently; I developed an appreciation for excellence and inspiration to do things well
89.	45	realizing you can help others understand the political process
90.	170+290	developing strategies to implement leadership skills that you learned and prioritize leadership roles you take on
91.	174+138	developing an improved government perspective and realizing how fortunate we are to be citizens of the USA
92.	18+282	realizing there is more than one "right way" to lead; changing the way we think about leadership positions
93.	181+227	creating an atmosphere that allows those around you to excel, expanding your sphere of influence
94.	235+275 = (186)	meeting key decision makers in the industry and witnessing first-hand leadership styles/models

95.	215+209+132	understanding the importance of ongoing self-reflection to monitor personal weaknesses and recognize when one is "back-sliding" into default or less desirable leadership styles
96.	196, 256 = (258, 265)	developing better time management skills
97.	197 = (248)	learning to communicate or work more effectively with the media
98.	176+199+200	understanding personality profiles, being able to assess personalities on teams, and knowing how to match a person's skills/abilities with roles or positions
99.	204 = (205, 206)	exposure to areas, organizations or resources that you would otherwise never have been exposed to
100.	208+264+79	exiting the program with a sense of accomplishment and inspiration, feeling both empowered and humbled
101.	211	it broadened the type of reading I did
102.	270+279 = (212)	learning that you have a reserve of energy that you can use when you are engaged in something that is meaningful to you, and then sharing that enthusiasm with others
103.	273	understanding that the agricultural industry has impacts at the local, state, national and international levels;
104.	218+112	recognizing the importance of teambuilding as an intentional activity; need to invest time and effort into developing new teams or assimilating new members
105.	293+295	realizing that the time and money invested in participation was well worth it; concerns (about time commitment) at the start of the program were unfounded; realization that you can be away from work and it will still be there when you get back
106.	223+236+239	improved networking skills resulting in the development of extensive mentoring, peer and friendship networks
107.	247	developing a broader knowledge of the value of agriculture (beyond food production), e.g. the social and environmental benefits of maintaining farms
108.	237	renewed interest/optimism in the future of agriculture through our youth
109.	126+185+240	developing a deeper understanding of the issues discussed; taking enough time to evaluate issues before taking a position on them; and generally putting more thought into a concept, idea, issue or project
110.	243+287	difficulties of balancing time away from home, family, etc. develops a renewed sense of importance in balancing commitments to family, self, work and community
111.	261+262	reinvigorating passion for what you do and discovering new opportunities to be passionate

		about
112.	207+241+276	developing a better understanding of the "big picture" of the food and agriculture system; appreciating the interconnectedness and complexity of the whole farm-food system
113.	219+136	recognizing the power of teams and learning to collaborate with others
114.	278	learning that producers should make or grow what consumers want; don't assume consumers will buy what producers make or grow
115.	283+284	realizing that unstructured learning time with classmates and the informal communication that occurs as a result is a tremendous benefit/value in personal and professional development
116.	233+110	improved interpersonal and teamwork skills, including how to be a good team member or follower
117.	33+143 = (34, 68, 231, 251, 271)	increased reflection on personal leadership styles (strengths, weaknesses and limitations)

APPENDIX F

ELIMINATED STATEMENTS

Original Statement #	Statement	Reason for Deletion
32	intense level of commitment to the program by individual participants	This statement speaks to the loyalty participants and alumni have for the program, not really an outcome (e.g. improved leadership behavior) of participation
56	more strain upon a finite source of donor dollars	This statement was really more a commentary on the current economic recession and it's effect on ability to raise funds for the program; not an outcome of participation in the program
226	learning from role-playing	This statement is about one pedagogical method used in the program and how participants learn, not an outcome of the program
249	watching and learning from the development of others	This is another statement about how participants learn during the program, not necessarily an out come of participation
288	perhaps the program didn't meet some participant's expectations	This statement is more a commentary on the fact that not all participants realize the same outcomes of participation (perhaps some are more satisfied than others) but does not identify a specific outcome of participation
289	there is a "let-down" after the program; we need to learn how to maintain momentum (i.e. continued learning) after the program is over	This statement is also a commentary about the emotional state of some participants after program completion (e.g. "let down"), not an outcome of participation
294	recognizing that some people are unable to fulfill the commitment and are unable to finish the program	This statement is more an observation that some participants do not complete the program as opposed to identifying an outcome of participation

APPENDIX G

FINAL LIST OF STATEMENTS

1. you recognize leadership deficiencies and become more critical of others in leadership positions
2. greater confidence in my leadership abilities, to take on larger projects or issues
3. increased self-awareness and modification of my behavior to more effectively interact with others
4. recognizing the importance of life-long learning and forcing yourself to set aside the time to learn
5. reducing perceived limitations (in your abilities); realizing you have much to offer; improved self-esteem
6. my experiences and knowledge of other cultures has grown through enhanced opportunities for travel
7. improved self-confidence at work and in situations where good public relations skills are required
8. you desire to learn more and look for other, similar (leadership education) opportunities
9. feeling prepared to take on leadership roles or take more risk
10. learning to overcome fears and challenges
11. thinking more critically about sources of information and looking for accurate information
12. the program strengthens and/or differentiates your resume' from others leading to increased promotion and/or career advancement of participants
13. I developed a broader, more complete perspective of NYS agriculture, and learned about many of the issues, obstacles, technologies and practices common to the industry
14. a tendency toward feeling "superior" to others or becoming frustrated by those around you that may feel inferior
15. knowing where to find and how to utilize resources
16. learning to overcome, adapt to or embrace change
17. development of a diverse network of skilled professionals (and resources) within the broader Ag industry that can be called upon at any time for assistance
18. increased community involvement and membership in more organizations
19. modeling effective leadership and demonstrating your own leadership successes
20. developing ability to motivate/inspire others to serve in leadership roles
21. being able to lead an organization through change
22. having contact with people on multiple sides of an issue and learning to appreciate diversity, new ideas and new ways of thinking
23. moving beyond the current workplace philosophy; working towards progress as opposed to preserving the status quo
24. understanding that accomplishing goals may take a long time; patience and persistence will be necessary to effect change
25. developing the ability to find solutions in the ideas and cooperation of others; more inclusive problem solving that leads to increased buy-in in decision making or change efforts
26. I hold myself to a higher standard every day and in every aspect of my life; I strive to make more ethical decisions
27. ability to recognize leadership potential in others and encourage them to develop and/or use their hidden talents
28. a significant level of personal growth that provides participants with specific tools or skills that improve leadership performance
29. the development and proliferation of new civic groups, local leadership programs, agricultural organizations, forums, and mentoring bodies
30. developing a desire to promote my industry and affiliated organizations
31. improved conflict resolution skills, including ability to deal with difficult people and/or controversial subjects, and to assess conflict resolution efforts

32. strain on the management capabilities of the attendee (difficult to prioritize between the training program and work-related responsibilities)
33. meeting people you otherwise would not have met and development of new relationships and friendships; expanding social and professional networks
34. increased ability to consider issues from multiple perspectives, different levels or differing points of view
35. realizing that there are high expectations associated with such training and recognizing your responsibility to be involved, you develop a sense of servant leadership
36. increased awareness of legislative issues affecting agriculture
37. general improvement in communication and presentation skills
38. learning and developing the arts of persuasion and negotiation
39. as graduate numbers grow, increasing the pool of highly qualified candidates for jobs, boards, task forces, and committees, larger scale impacts occur over broader contexts
40. you find yourself more in-demand (to serve in leadership positions)
41. better understanding of how the political process works at the local, state and federal levels
42. enhanced ability to do fundraising for other programs
43. developing the ability to analyze an issue at a global level and bring that analysis down to a local level
44. others have high expectations of your leadership abilities and look to you as a leader
45. learning the "art of conversation", including knowing when to keep quiet and how to communicate or interact with different personalities
46. improving ability to analyze federal, state and local programs and evaluate their effectiveness
47. improvements in employee recruitment or retention as a result of presenting a positive image of a business or organization
48. developing increased confidence in communicating with people
49. learning how to dress appropriately for the occasion and understanding how appearance and professional behavior can influence how others relate to you
50. realizing you can learn from everyone, even if that means learning what not to do (e.g. learning from examples of bad leadership)
51. sharing/spreading good ideas across a wide community (e.g. class or alumni)
52. realizing that some leaders may exploit other's leadership weaknesses
53. knowing how to navigate the multitude of agencies involved in regulating food and agriculture
54. improved listening skills
55. learning that you can develop other leaders to relieve you of your leadership responsibilities or mitigate generational leadership gaps that may exist
56. opportunities to make contacts and present your business/organization in a positive light (i.e. market yourself or your organization) that increase your organization's exposure or workload.
57. learning how to run an effective meeting
58. exposure to things outside your comfort zone and critiquing/reflecting on your responses to that situation
59. improved facilitation skills (e.g. leading a Q&A session, speaker introductions)
60. realizing that leadership is hard and sometimes good people will lose faith, burnout and disengage
61. knowing conflict and it's resolution are often a necessary aspect of change
62. learning how to develop an agenda and being able to train others on how to allocate time on meeting agendas
63. realizing that failure is not to be feared; it is your response to failure that counts
64. learning to accept or acknowledge alternate perspectives and forcing yourself to think about the other side(s) of an issue before responding
65. getting to know your legislative staffers (in addition to elected officials) and learning how to effectively lobby them
66. improving presentation and organization of thoughts; learning to fine-tune statements or arguments around specific issues; keeping messages short and to the point
67. improving event management skills; ability to plan, organize, implement and assess a program, class or tour

68. realizing the importance of having organized meetings and using an agenda
69. exposure to different perspectives and leadership styles through enhanced opportunities for travel
70. learning how to advocate for the Ag industry
71. recognizing the importance of bringing a level of Ag issues awareness to local leadership programs, the media, politicians, government agency staff, and others in public service
72. developing skills to create a vision of the future and learning how to put that vision into words
73. learning to respect the needs of a diverse community, being able to meet others on their terms through open communication, and responding effectively yet respectfully
74. learning how to compromise and increasing your ability to bring divergent groups together on common issues
75. learning how to ask good questions
76. improving strategic thinking and planning; setting goals and planning how to achieve them
77. developing a long-term sense of camaraderie, friendship and membership in a select group; feeling responsible for the stewardship and intentional care of your team
78. learning to understand the power structure of an organization and how to work within it
79. assessing a current business model, incubation of new ideas, recognizing the capability/potential to diversify
80. tendency for over-involvement immediately following participation; need to say "no" to some opportunities
81. practicing debate skills that allow you to see both sides of an issue
82. your personal relationships tend to improve
83. learning to be mindful of the personal constraints of someone else when you are asking them to take a leadership role
84. developing the ability to identify and act upon opportunities; to seize an opportunity in the midst of a crisis
85. personal development that creates a vision of leadership from an over-arching perspective
86. gaining in-depth knowledge about "soft" leadership skills
87. practicing reflective consideration of one's profession and/or future and being more open to personal change
88. recognition of my complacency inspired me to do more and do things differently; I developed an appreciation for excellence and inspiration to do things well
89. realizing you can help others understand the political process
90. developing strategies to implement leadership skills that you learned and prioritize leadership roles you take on
91. developing an improved government perspective and realizing how fortunate we are to be citizens of the USA
92. realizing there is more than one "right way" to lead; changing the way we think about leadership positions
93. creating an atmosphere that allows those around you to excel, expanding your sphere of influence
94. meeting key decision makers in the industry and witnessing first-hand leadership styles/models
95. understanding the importance of ongoing self-reflection to monitor personal weaknesses and recognize when one is "back-sliding" into default or less desirable leadership styles
96. developing better time management skills
97. learning to communicate or work more effectively with the media
98. understanding personality profiles, being able to assess personalities on teams, and knowing how to match a person's skills/abilities with roles or positions
99. exposure to areas, organizations or resources that you would otherwise never have been exposed to
100. exiting the program with a sense of accomplishment and inspiration, feeling both empowered and humbled
101. it broadened the type of reading I did
102. learning that you have a reserve of energy that you can use when you are engaged in something that is meaningful to you, and then sharing that enthusiasm with others

103. understanding that the agricultural industry has impacts at the local, state, national and international levels;
104. recognizing the importance of teambuilding as an intentional activity; need to invest time and effort into developing new teams or assimilating new members
105. realizing that the time and money invested in participation was well worth it; concerns (about time commitment) at the start of the program were unfounded; realization that you can be away from work and it will still be there when you get back
106. improved networking skills resulting in the development of extensive mentoring, peer and friendship networks
107. developing a broader knowledge of the value of agriculture (beyond food production), e.g. the social and environmental benefits of maintaining farms
108. renewed interest/optimism in the future of agriculture through our youth
109. developing a deeper understanding of the issues discussed; taking enough time to evaluate issues before taking a position on them; and generally putting more thought into a concept, idea, issue or project
110. difficulties of balancing time away from home, family, etc. develops a renewed sense of importance in balancing commitments to family, self, work and community
111. reinvigorating passion for what you do and discovering new opportunities to be passionate about
112. developing a better understanding of the "big picture" of the food and agriculture system; appreciating the interconnectedness and complexity of the whole farm-food system
113. recognizing the power of teams and learning to collaborate with others
114. learning that producers should make or grow what consumers want; don't assume consumers will buy what producers make or grow
115. realizing that unstructured learning time with classmates and the informal communication that occurs as a result is a tremendous benefit/value in personal and professional development
116. improved interpersonal and teamwork skills, including how to be a good team member or follower
117. increased reflection on personal leadership styles (strengths, weaknesses and limitations)

APPENDIX H

INTENDED PROGRAM OUTCOMES
(As taken from the strategic plan dated 1-9-08)

Our desired outcomes can be identified in three broad categories, as follows:

A. Participants' **leadership skills** and behavior will improve, including:
    a. Public speaking, written communication, and effective listening
    b. Working with the media, marketing and promotion
    c. Conflict Resolution, argumentation and debate
    d. Personality type awareness and self assessment
    e. Teambuilding and Teamwork (Bonding Social Capital)
    f. Networking, diversity appreciation (Bridging & Linking Social Capital)
    g. Meeting management
    h. Problem identification / Collaborative problem solving
    i. Critical thinking / Systems thinking / Change management
    j. Technological literacy / research skills
    k. Time management and organization
    l. Commitment to lifelong learning
B. Participants' sense of **civic responsibility** and service will strengthen:
    a. Activities will help our participants understand the policy development process at the local, state, federal and international levels.
    b. In addition to learning how the policy development process works, they will learn how it affects them and how to influence it.
    c. Participants will be challenged and motivated to get involved in the public policy process and community service roles.
    d. Awareness of our "place" in a global society.
C. Participants will be better informed of **relevant issues** facing their industry and community
    a. The specific issues studied in LEAD New York will change from class to class, depending on the learning needs of the participants, and the relevancy to current industry/community challenges.
    b. These issues provide the context in which leadership skill development is practiced, and public policy is examined.
    c. These issues may include, but are not limited to, such things as:
        i. Labor, immigration reform
        ii. Trade, free trade agreements
        iii. Environment
        iv. Technology
        v. Food safety/security
        vi. Land use and development, farmland preservation efforts
        vii. Ethics
        viii. Innovation/creativity/change
        ix. Specific agricultural sectors (e.g. dairy, equine, forestry, etc.)

APPENDIX I

SORT RECORDING SHEET

After you have sorted the statement cards into piles in a way that makes sense to you, please record your sorting data on this sheet according to the instructions provided to you during the session. ***Remember that you do not have to have as many piles as there are boxes on this sheet.*** The space is provided to allow for variability among participants in the way they group the items. The first box (Example Pile) is filled out to serve as a guide for you.

Example Pile Title or Main Topic: _____Program Management_____
Record here the identifying number of each statement in this pile, separating the ID numbers with commas.

Start recording your sorts here:

Pile Title or Main Topic: _____
Record here the identifying number of each statement in this pile, separating the ID numbers with commas.

Pile Title or Main Topic: _____
Record here the identifying number of each statement in this pile, separating the ID numbers with commas.

Pile Title or Main Topic: _____
Record here the identifying number of each statement in this pile, separating the ID numbers with commas.

Pile Title or Main Topic: _____
Record here the identifying number of each statement in this pile, separating the ID numbers with commas.

Pile Title or Main Topic: _____
Record here the identifying number of each statement in this pile, separating the ID numbers with commas.

Pile Title or Main Topic: _____
Record here the identifying number of each statement in this pile, separating the ID numbers with commas.

APPENDIX J

RATING INVITATION LETTER

September 14, 2009

Re: Invitation to Participate in Research Study

Dear LEAD Alumni:

I am writing to ask for your participation in the next phase of my dissertation research on the outcomes of participation in the LEAD New York Program. In an earlier phase of this research, a subset of alumni generated statements representing outcomes of participation in our leadership development program. In this phase, you will be asked to ***rate*** those statements on two scales: importance and feasibility. Every effort has been made to make participating in this process as convenient as possible:

- You will not need to do anything to prepare for this rating activity, other than setting aside approximately one hour of your time to complete the rating
- You will not have to travel anywhere; you can complete the rating from your home or office
- You can complete the rating at your leisure (24/7); there is no specific time at which you must do the activity (though the deadline is October 30.)
- You can complete the rating on-line via a web-based instrument. If you do not have internet access or choose not to complete the on-line instrument, a paper-and-pencil instrument will be provided that you can return in the mail.

The purpose of this letter is merely to give you an advance notice of the opportunity. In about two weeks, you will receive another mailing from me, in which I will provide complete instructions and materials necessary to complete the rating activity. Please keep an eye open for that mailing.

Your participation in this phase of the study would be greatly appreciated. I need as many participants as possible, from all classes, geographic areas, and professional backgrounds. Ultimately, your input may help improve the LEAD program. I hope you will consider participating. Thank you.

Sincerely,

Larry Van De Valk, Director
LEAD New York

APPENDIX K

RATING INSTRUCTION LETTER

September 28, 2009

Re: Instructions for Rating Activity

Dear LEAD Alumni:

Two weeks ago I sent you a letter asking for your participation in this next phase of my dissertation research: rating statements about the outcomes of participation in LEAD New York. I hope that you will choose to participate. This mailing provides the instructions on how to do so.

If you choose to complete the rating activity **on-line** *(recommended)*:

1. Please visit: http://www.conceptsystemsglobal.com/LEADNY/rate. This will bring you to the project home page.
2. In general, follow the instructions on the screen. They are fairly intuitive. You will need to complete the following steps (in this order):
    a. Create a user account via the "Project Sign Up Page"
    b. Read and accept the informed consent on the "Informed Consent Page"
    c. Answer 6 demographic questions on the "Participant Questions" page
    d. Rate all statements on the "Rating: Outcome Importance" page
    e. Rate all statements on the "Rating: Likelihood of Accomplishment" page
3. All of this should take approximately one hour to complete. A progress bar at the top of the window will let you know how far along you are in the process.
4. Although you can complete one step, save your settings, and return to the project at a later time, I would strongly recommend that you complete the entire activity at the same time.

If you choose to complete the rating activity via the **paper-and-pencil** instrument:

1. Please complete the "Participant Questions" sheet (enclosed)
2. Sign the informed consent form (enclosed)
3. Complete the rating sheet (enclosed). Follow the instructions on the sheet. Please rate all statements.
    a. Note that there are two scales that must be rated: "Importance" and "Feasibility".
4. Return all forms in the envelope that is provided. If you should misplace the envelope, return them to the following address:

LEAD New York, Attn: Larry Van De Valk, 114 Kennedy Hall, Ithaca, NY 14853

Please note that the deadline for completing this rating activity is October 30, 2009. Remember that although we are asking you to provide some basic demographic information, all of your responses will be kept anonymous. If you have any questions about this research project, please don't hesitate to contact me at: 607-255-7907 or ljv4@cornell.edu. Thank you for your participation.

Sincerely,

Larry Van De Valk, Director
LEAD New York

APPENDIX L

RATING REMINDER POST CARD

October 15, 2009

Re: Participation in the LEAD New York Research Study

Dear LEAD Alumni:

Several weeks ago, I sent you an invitation to participate in the current phase of my dissertation research on the outcomes of participation in the LEAD New York Program. About two weeks ago, I followed up with a mailing that included instructions on how to participate. This letter serves as a reminder and additional request for your assistance.

If you have already completed the rating activity and this letter has "crossed in the mail", thank you for your participation.

If you have not yet participated but would like to do so, please visit: http://www.conceptsystemsglobal.com/LEADNY/rate and follow the instructions on the screen. If you do not have internet access, please contact our office (607-255-7907 or ljv4@cornell.edu) and we can mail you a copy of the paper-and-pencil rating instrument.

Remember that the deadline for participation is October 30, 2009 (about two weeks from now). If you have not already done so, please complete the rating activity ASAP. I need as many alumni to participate in this rating process as possible. Your help is greatly appreciated.

Sincerely,

Larry Van De Valk, Director
LEAD New York

APPENDIX M

FINAL RATING REMINDER TO NON-RESPONDENTS

October 26, 2009

Re: FINAL reminder to participate in LEAD research project

Dear LEAD Alumnus:

This message is being sent as a final reminder of your opportunity to participate in a research study about the outcomes of participation in the LEAD New York Program. To date, we have not received a response from you.

This opportunity involves rating statements about outcomes of participation on two scales: importance and feasibility. It should take approximately one hour to complete the activity.

If you would like to complete the activity on-line, please visit: http://www.conceptsystemsglobal.com/LEADNY/rate and follow the instructions on the screen. If you would like to complete the activity manually, please contact our office (607-255-7907 or ljv4@cornell.edu) and we will mail the forms to you immediately.

Remember the deadline for participation is October 30, 2009. We need as many alumni as possible to participate, so we hope we can count on your participation. Thank you for your consideration.

Sincerely,

Larry Van De Valk, Director
LEAD New York

APPENDIX N

RATING RECORDING SHEET

It is recommended that you complete the rating activity via the web-based process that has been created for this project. Simply visit: http://www.conceptsystemsglobal.com/LEADNY/rate and follow the instructions there.

If, however, you choose to complete this process with the following form, please return it and all other forms that accompany this mailing to the LEAD New York office in the envelope provided. This is a double-sided questionnaire; please remember to complete all pages. Also note that there are two rating scales (importance and feasibility) for each statement; please complete both rating scales.

For the **Importance Rating**: Each statement in the list below represents one possible outcome of participation in a leadership development program like LEAD New York, as identified by LEAD alumni in an earlier phase of this project. Recognizing that *all* of the outcomes in this list are likely to be important to most LEAD alumni, we are asking you to rate the *relative* importance of each outcome as compared to the rest, so use all of the values in the rating scale to make distinctions. Please circle a number between 1 and 5 for each statement based upon how important you think it is. *The importance ratings should be recorded to the left of each statement*. Use the following scale:

1 = Relatively unimportant compared to the other outcomes
2 = Somewhat important
3 = Average importance
4 = Somewhat more important
5 = Extremely important compared to the other outcomes

For the **Feasibility Rating**: Though each of the items in this list may represent an outcome of participation in a leadership development program like LEAD New York, we are asking you to rate the *relative* likelihood that LEAD could accomplish the desired outcome (or be responsible for the specific consequence), so use all of the values in the rating scale to make distinctions. Please circle a number between 1 and 5 for each statement based upon how likely you think the LEAD Program could accomplish this outcome. *The feasibility rating should be recorded to the right of each statement*. Use the following scale:

1 = highly *un*likely compared to the other outcomes
2 = somewhat unlikely
3 = likely
4 = more likely
5 = highly likely compared to the other outcomes

"One specific consequence of participation in a high-quality leadership development program is…"

Importance Rating	#	Statement	Feasibility Rating
1 2 3 4 5	1	you recognize leadership deficiencies and become more critical of others in leadership positions	1 2 3 4 5

1 2 3 4 5	2	greater confidence in my leadership abilities, to take on larger projects or issues	1 2 3 4 5
1 2 3 4 5	3	increased self-awareness and modification of my behavior to more effectively interact with others	1 2 3 4 5
1 2 3 4 5	4	recognizing the importance of life-long learning and forcing yourself to set aside the time to learn	1 2 3 4 5
1 2 3 4 5	5	reducing perceived limitations (in your abilities); realizing you have much to offer; improved self-esteem	1 2 3 4 5
1 2 3 4 5	6	my experiences and knowledge of other cultures has grown through enhanced opportunities for travel	1 2 3 4 5
1 2 3 4 5	7	improved self-confidence at work and in situations where good public relations skills are required	1 2 3 4 5
1 2 3 4 5	8	you desire to learn more and look for other, similar (leadership education) opportunities	1 2 3 4 5
1 2 3 4 5	9	feeling prepared to take on leadership roles or take more risk	1 2 3 4 5
1 2 3 4 5	10	learning to overcome fears and challenges	1 2 3 4 5
1 2 3 4 5	11	thinking more critically about sources of information and looking for accurate information	1 2 3 4 5
1 2 3 4 5	12	the program strengthens and/or differentiates your resume' from others leading to increased promotion and/or career advancement of participants	1 2 3 4 5
1 2 3 4 5	13	I developed a broader, more complete perspective of NYS agriculture, and learned about many of the issues, obstacles, technologies and practices common to the industry	1 2 3 4 5
1 2 3 4 5	14	a tendency toward feeling "superior" to others or becoming frustrated by those around you that may feel inferior	1 2 3 4 5
1 2 3 4 5	15	knowing where to find and how to utilize resources	1 2 3 4 5
1 2 3 4 5	16	learning to overcome, adapt to or embrace change	1 2 3 4 5
1 2 3 4 5	17	development of a diverse network of skilled professionals (and resources) within the broader Ag industry that can be called upon at any time for assistance	1 2 3 4 5
1 2 3 4 5	18	increased community involvement and membership in more organizations	1 2 3 4 5
1 2 3 4 5	19	modeling effective leadership and demonstrating your own leadership successes	1 2 3 4 5
1 2 3 4 5	20	developing ability to motivate/inspire others to serve in leadership roles	1 2 3 4 5
1 2 3 4 5	21	being able to lead an organization through change	1 2 3 4 5
1 2 3 4 5	22	having contact with people on multiple sides of an issue and learning to appreciate diversity, new ideas and new ways of thinking	1 2 3 4 5
1 2 3 4 5	23	moving beyond the current workplace philosophy; working towards progress as opposed to preserving the status quo	1 2 3 4 5
1 2 3 4 5	24	understanding that accomplishing goals may take a long time; patience and persistence will be necessary to effect change	1 2 3 4 5
1 2 3 4 5	25	developing the ability to find solutions in the ideas and cooperation of others; more inclusive problem solving	1 2 3 4 5

		that leads to increased buy-in in decision making or change efforts	
1 2 3 4 5	26	I hold myself to a higher standard every day and in every aspect of my life; I strive to make more ethical decisions	1 2 3 4 5
1 2 3 4 5	27	ability to recognize leadership potential in others and encourage them to develop and/or use their hidden talents	1 2 3 4 5
1 2 3 4 5	28	a significant level of personal growth that provides participants with specific tools or skills that improve leadership performance	1 2 3 4 5
1 2 3 4 5	29	the development and proliferation of new civic groups, local leadership programs, agricultural organizations, forums, and mentoring bodies	1 2 3 4 5
1 2 3 4 5	30	developing a desire to promote my industry and affiliated organizations	1 2 3 4 5
1 2 3 4 5	31	improved conflict resolution skills, including ability to deal with difficult people and/or controversial subjects, and to assess conflict resolution efforts	1 2 3 4 5
1 2 3 4 5	32	strain on the management capabilities of the attendee (difficult to prioritize between the training program and work-related responsibilities)	1 2 3 4 5
1 2 3 4 5	33	meeting people you otherwise would not have met and development of new relationships and friendships; expanding social and professional networks	1 2 3 4 5
1 2 3 4 5	34	increased ability to consider issues from multiple perspectives, different levels or differing points of view	1 2 3 4 5
1 2 3 4 5	35	realizing that there are high expectations associated with such training and recognizing your responsibility to be involved, you develop a sense of servant leadership	1 2 3 4 5
1 2 3 4 5	36	increased awareness of legislative issues affecting agriculture	1 2 3 4 5
1 2 3 4 5	37	general improvement in communication and presentation skills	1 2 3 4 5
1 2 3 4 5	38	learning and developing the arts of persuasion and negotiation	1 2 3 4 5
1 2 3 4 5	39	as graduate numbers grow, increasing the pool of highly qualified candidates for jobs, boards, task forces, and committees, larger scale impacts occur over broader contexts	1 2 3 4 5
1 2 3 4 5	40	you find yourself more in-demand (to serve in leadership positions)	1 2 3 4 5
1 2 3 4 5	41	better understanding of how the political process works at the local, state and federal levels	1 2 3 4 5
1 2 3 4 5	42	enhanced ability to do fundraising for other programs	1 2 3 4 5
1 2 3 4 5	43	developing the ability to analyze an issue at a global level and bring that analysis down to a local level	1 2 3 4 5
1 2 3 4 5	44	others have high expectations of your leadership abilities and look to you as a leader	1 2 3 4 5
1 2 3 4 5	45	learning the “art of conversation”, including knowing when to keep quiet and how to communicate or interact with different personalities	1 2 3 4 5

1 2 3 4 5	46	improving ability to analyze federal, state and local programs and evaluate their effectiveness	1 2 3 4 5
1 2 3 4 5	47	improvements in employee recruitment or retention as a result of presenting a positive image of a business or organization	1 2 3 4 5
1 2 3 4 5	48	developing increased confidence in communicating with people	1 2 3 4 5
1 2 3 4 5	49	learning how to dress appropriately for the occasion and understanding how appearance and professional behavior can influence how others relate to you	1 2 3 4 5
1 2 3 4 5	50	realizing you can learn from everyone, even if that means learning what not to do (e.g. learning from examples of bad leadership)	1 2 3 4 5
1 2 3 4 5	51	sharing/spreading good ideas across a wide community (e.g. class or alumni)	1 2 3 4 5
1 2 3 4 5	52	realizing that some leaders may exploit other's leadership weaknesses	1 2 3 4 5
1 2 3 4 5	53	knowing how to navigate the multitude of agencies involved in regulating food and agriculture	1 2 3 4 5
1 2 3 4 5	54	improved listening skills	1 2 3 4 5
1 2 3 4 5	55	learning that you can develop other leaders to relieve you of your leadership responsibilities or mitigate generational leadership gaps that may exist	1 2 3 4 5
1 2 3 4 5	56	opportunities to make contacts and present your business/organization in a positive light (i.e. market yourself or your organization) that increase your organization's exposure or workload	1 2 3 4 5
1 2 3 4 5	57	learning how to run an effective meeting	1 2 3 4 5
1 2 3 4 5	58	exposure to things outside your comfort zone and critiquing/reflecting on your responses to that situation	1 2 3 4 5
1 2 3 4 5	59	improved facilitation skills (e.g. leading a Q&A session, speaker introductions)	1 2 3 4 5
1 2 3 4 5	60	realizing that leadership is hard and sometimes good people will lose faith, burnout and disengage	1 2 3 4 5
1 2 3 4 5	61	knowing conflict and it's resolution are often a necessary aspect of change	1 2 3 4 5
1 2 3 4 5	62	learning how to develop an agenda and being able to train others on how to allocate time on meeting agendas	1 2 3 4 5
1 2 3 4 5	63	realizing that failure is not to be feared; it is your response to failure that counts	1 2 3 4 5
1 2 3 4 5	64	learning to accept or acknowledge alternate perspectives and forcing yourself to think about the other side(s) of an issue before responding	1 2 3 4 5
1 2 3 4 5	65	getting to know your legislative staffers (in addition to elected officials) and learning how to effectively lobby them	1 2 3 4 5
1 2 3 4 5	66	improving presentation and organization of thoughts; learning to fine-tune statements or arguments around specific issues; keeping messages short and to the point	1 2 3 4 5
1 2 3 4 5	67	improving event management skills; ability to plan, organize, implement and assess a program, class or tour	1 2 3 4 5

1 2 3 4 5	68	realizing the importance of having organized meetings and using an agenda	1 2 3 4 5
1 2 3 4 5	69	exposure to different perspectives and leadership styles through enhanced opportunities for travel	1 2 3 4 5
1 2 3 4 5	70	learning how to advocate for the Ag industry	1 2 3 4 5
1 2 3 4 5	71	recognizing the importance of bringing a level of Ag issues awareness to local leadership programs, the media, politicians, government agency staff, and others in public service	1 2 3 4 5
1 2 3 4 5	72	developing skills to create a vision of the future and learning how to put that vision into words	1 2 3 4 5
1 2 3 4 5	73	learning to respect the needs of a diverse community, being able to meet others on their terms through open communication, and responding effectively yet respectfully	1 2 3 4 5
1 2 3 4 5	74	learning how to compromise and increasing your ability to bring divergent groups together on common issues	1 2 3 4 5
1 2 3 4 5	75	learning how to ask good questions	1 2 3 4 5
1 2 3 4 5	76	improving strategic thinking and planning; setting goals and planning how to achieve them	1 2 3 4 5
1 2 3 4 5	77	developing a long-term sense of camaraderie, friendship and membership in a select group; feeling responsible for the stewardship and intentional care of your team	1 2 3 4 5
1 2 3 4 5	78	learning to understand the power structure of an organization and how to work within it	1 2 3 4 5
1 2 3 4 5	79	assessing a current business model, incubation of new ideas, recognizing the capability/potential to diversify	1 2 3 4 5
1 2 3 4 5	80	tendency for over-involvement immediately following participation; need to say “no” to some opportunities	1 2 3 4 5
1 2 3 4 5	81	practicing debate skills that allow you to see both sides of an issue	1 2 3 4 5
1 2 3 4 5	82	your personal relationships tend to improve	1 2 3 4 5
1 2 3 4 5	83	learning to be mindful of the personal constraints of someone else when you are asking them to take a leadership role	1 2 3 4 5
1 2 3 4 5	84	developing the ability to identify and act upon opportunities; to seize an opportunity in the midst of a crisis	1 2 3 4 5
1 2 3 4 5	85	personal development that creates a vision of leadership from an over-arching perspective	1 2 3 4 5
1 2 3 4 5	86	gaining in-depth knowledge about “soft” leadership skills	1 2 3 4 5
1 2 3 4 5	87	practicing reflective consideration of one’s profession and/or future and being more open to personal change	1 2 3 4 5
1 2 3 4 5	88	recognition of my complacency inspired me to do more and do things differently; I developed an appreciation for excellence and inspiration to do things well	1 2 3 4 5
1 2 3 4 5	89	realizing you can help others understand the political process	1 2 3 4 5
1 2 3 4 5	90	developing strategies to implement leadership skills that you learned and prioritize leadership roles you take	1 2 3 4 5

		on	
1 2 3 4 5	91	developing an improved government perspective and realizing how fortunate we are to be citizens of the USA	1 2 3 4 5
1 2 3 4 5	92	realizing there is more than one “right way” to lead; changing the way we think about leadership positions	1 2 3 4 5
1 2 3 4 5	93	creating an atmosphere that allows those around you to excel, expanding your sphere of influence	1 2 3 4 5
1 2 3 4 5	94	meeting key decision makers in the industry and witnessing first-hand leadership styles/models	1 2 3 4 5
1 2 3 4 5	95	understanding the importance of ongoing self-reflection to monitor personal weaknesses and recognize when one is “back-sliding” into default or less desirable leadership styles	1 2 3 4 5
1 2 3 4 5	96	developing better time management skills	1 2 3 4 5
1 2 3 4 5	97	learning to communicate or work more effectively with the media	1 2 3 4 5
1 2 3 4 5	98	understanding personality profiles, being able to assess personalities on teams, and knowing how to match a person’s skills/abilities with roles or positions	1 2 3 4 5
1 2 3 4 5	99	exposure to areas, organizations or resources that you would otherwise never have been exposed to	1 2 3 4 5
1 2 3 4 5	100	exiting the program with a sense of accomplishment and inspiration, feeling both empowered and humbled	1 2 3 4 5
1 2 3 4 5	101	it broadened the type of reading I did	1 2 3 4 5
1 2 3 4 5	102	learning that you have a reserve of energy that you can use when you are engaged in something that is meaningful to you, and then sharing that enthusiasm with others	1 2 3 4 5
1 2 3 4 5	103	understanding that the agricultural industry has impacts at the local, state, national and international levels	1 2 3 4 5
1 2 3 4 5	104	recognizing the importance of teambuilding as an intentional activity; need to invest time and effort into developing new teams or assimilating new members	1 2 3 4 5
1 2 3 4 5	105	realizing that the time and money invested in participation was well worth it; concerns (about time commitment) at the start of the program were unfounded; realization that you can be away from work and it will still be there when you get back	1 2 3 4 5
1 2 3 4 5	106	improved networking skills resulting in the development of extensive mentoring, peer and friendship networks	1 2 3 4 5
1 2 3 4 5	107	developing a broader knowledge of the value of agriculture (beyond food production), e.g. the social and environmental benefits of maintaining farms	1 2 3 4 5
1 2 3 4 5	108	renewed interest/optimism in the future of agriculture through our youth	1 2 3 4 5
1 2 3 4 5	109	developing a deeper understanding of the issues discussed; taking enough time to evaluate issues before taking a position on them; and generally putting more thought into a concept, idea, issue or project	1 2 3 4 5
1 2 3 4 5	110	difficulties of balancing time away from home, family, etc. develops a renewed sense of importance in	1 2 3 4 5

		balancing commitments to family, self, work and community	
1 2 3 4 5	111	reinvigorating passion for what you do and discovering new opportunities to be passionate about	1 2 3 4 5
1 2 3 4 5	112	developing a better understanding of the "big picture" of the food and agriculture system; appreciating the interconnectedness and complexity of the whole farm-food system	1 2 3 4 5
1 2 3 4 5	113	recognizing the power of teams and learning to collaborate with others	1 2 3 4 5
1 2 3 4 5	114	learning that producers should make or grow what consumers want; don't assume consumers will buy what producers make or grow	1 2 3 4 5
1 2 3 4 5	115	realizing that unstructured learning time with classmates and the informal communication that occurs as a result is a tremendous benefit/value in personal and professional development	1 2 3 4 5
1 2 3 4 5	116	improved interpersonal and teamwork skills, including how to be a good team member or follower	1 2 3 4 5
1 2 3 4 5	117	increased reflection on personal leadership styles (strengths, weaknesses and limitations)	1 2 3 4 5

APPENDIX O

SELECTING THE NUMBER OF CLUSTERS WORKSHEET

Number of Clusters	Clusters Merged	Assessment (A, U, D)	Comments
19	17, 18	xAgree o Undecided o Disagree	
18	19, 20	xAgree o Undecided o Disagree	
17	6, 7	xAgree o Undecided o Disagree	
16	13, 14	xAgree o Undecided o Disagree	
15	2, 3	xAgree o Undecided o Disagree	
14	8, 9	o Agree xUndecided o Disagree	
13	16, 17, 18	o Agree xUndecided o Disagree	
12	10, 11	o Agree xUndecided o Disagree	
11	5, 6, 7	o Agree xUndecided o Disagree	
10	2, 3, 4	xAgree o Undecided o Disagree	
9	13, 14, 15	xAgree o Undecided o Disagree	
8	8, 9, 10, 11	o Agree xUndecided o Disagree	
7	8, 9, 10, 11, 12	o Agree o Undecided xDisagree	
6	16, 17, 18, 19, 20	o Agree o Undecided xDisagree	
5	1, 2, 3, 4	o Agree o Undecided xDisagree	

APPENDIX P

STATEMENTS BY CLUSTER IN ASCENDING ORDER BY BRIDGING
(Original Cluster Solution)

Cluster 1: leadership in others

86	gaining in-depth knowledge about "soft" leadership skills	.43
55	learning that you can develop other leaders to relieve you of your leadership responsibilities or mitigate generational leadership gaps that may exist	.44
19	modeling effective leadership and demonstrating your own leadership successes	.45
92	realizing there is more than one "right way" to lead; changing the way we think about leadership positions	.45
1	you recognize leadership deficiencies and become more critical of others in leadership positions	.46
27	ability to recognize leadership potential in others and encourage them to develop and/or use their hidden talents	.47
52	realizing that some leaders may exploit other's leadership weaknesses	.47
50	realizing you can learn from everyone, even if that means learning what not to do (e.g. learning from examples of bad leadership)	.51
20	developing ability to motivate/inspire others to serve in leadership roles	.52
60	realizing that leadership is hard and sometimes good people will lose faith, burnout and disengage	.52
83	learning to be mindful of the personal constraints of someone else when you are asking them to take a leadership role	.56

Count: **11** Std. Dev.:**0.04** Minimum:**0.43** Average:**0.48** Variance:**0.00** Maximum:**0.56** Median:**0.47**

Cluster 2: other leadership skills

74	learning how to compromise and increasing your ability to bring divergent groups together on common issues	.47
84	developing the ability to identify and act upon opportunities; to seize an opportunity in the midst of a crisis	.48
90	developing strategies to implement leadership skills that you learned and prioritize leadership roles you take on	.48
101	it broadened the type of reading I did	.49
25	developing the ability to find solutions in the ideas and cooperation of others; more inclusive problem solving that leads to increased buy-in in decision making or change efforts	.50
34	increased ability to consider issues from multiple perspectives, different levels or differing points of view	.51
109	developing a deeper understanding of the issues discussed; taking enough time to evaluate issues before taking a position on them; and generally putting more thought into a concept, idea, issue or project	.51
49	learning how to dress appropriately for the occasion and understanding how appearance and professional behavior can influence how others relate to you	.52
76	improving strategic thinking and planning; setting goals and planning how to achieve them	.53
61	knowing conflict and it's resolution are often a necessary aspect of change	.55
93	creating an atmosphere that allows those around you to excel, expanding your sphere of influence	.55
98	understanding personality profiles, being able to assess personalities on teams, and knowing how to match a person's skills/abilities with roles or positions	.56
96	developing better time management skills	.57
64	learning to accept or acknowledge alternate perspectives and forcing yourself to think about the other side(s) of an issue before responding	.57

69	exposure to different perspectives and leadership styles through enhanced opportunities for travel	.59
22	having contact with people on multiple sides of an issue and learning to appreciate diversity, new ideas and new ways of thinking	.61
21	being able to lead an organization through change	.63
43	developing the ability to analyze an issue at a global level and bring that analysis down to a local level	.64
78	learning to understand the power structure of an organization and how to work within it	.66
79	assessing a current business model, incubation of new ideas, recognizing the capability/potential to diversify	.68
73	learning to respect the needs of a diverse community, being able to meet others on their terms through open communication, and responding effectively yet respectfully	.72
47	improvements in employee recruitment or retention as a result of presenting a positive image of a business or organization	.72
15	knowing where to find and how to utilize resources	.77
42	enhanced ability to do fundraising for other programs	.79

Count:**24** Std. Dev.:**0.09** Minimum:**0.47** Average:**0.59** Variance: **0.01** Maximum:**0.79** Median:**0.56**

Cluster 3: communication skills

66	improving presentation and organization of thoughts; learning to fine-tune statements or arguments around specific issues; keeping messages short and to the point	.40
59	improved facilitation skills (e.g. leading a Q&A session, speaker introductions)	.42
38	learning and developing the arts of persuasion and negotiation	.43
57	learning how to run an effective meeting	.45
67	improving event management skills; ability to plan, organize, implement and assess a program, class or tour	.46
37	general improvement in communication and presentation skills	.47
31	improved conflict resolution skills, including ability to deal with difficult people and/or controversial subjects, and to assess conflict resolution efforts	.48
62	learning how to develop an agenda and being able to train others on how to allocate time on meeting agendas	.49
75	learning how to ask good questions	.49
68	realizing the importance of having organized meetings and using an agenda	.49
72	developing skills to create a vision of the future and learning how to put that vision into words	.52
45	learning the “art of conversation”, including knowing when to keep quiet and how to communicate or interact with different personalities	.52
81	practicing debate skills that allow you to see both sides of an issue	.54
54	improved listening skills	.55
11	thinking more critically about sources of information and looking for accurate information	.57
97	learning to communicate or work more effectively with the media	.70
48	developing increased confidence in communicating with people	.71

Count:**17** Std. Dev.:**0.08** Minimum:**0.40** Average:**0.51** Variance:**0.01** Maximum:**0.71** Median:**0.49**

Cluster 4: knowledge/issues

112	developing a better understanding of the “big picture” of the food and agriculture system; appreciating the interconnectedness and complexity of the whole farm-food system	.28
107	developing a broader knowledge of the value of agriculture (beyond food production), e.g. the social and environmental benefits of maintaining farms	.35
13	I developed a broader, more complete perspective of NYS agriculture, and learned about many of the issues, obstacles, technologies and practices common to the industry	.43
114	learning that producers should make or grow what consumers want; don’t assume consumers will buy what producers make or grow	.56
70	learning how to advocate for the Ag industry	.60

99	exposure to areas, organizations or resources that you would otherwise never have been exposed to	.66
30	developing a desire to promote my industry and affiliated organizations	.76
6	my experiences and knowledge of other cultures has grown through enhanced opportunities for travel	.76
29	the development and proliferation of new civic groups, local leadership programs, agricultural organizations, forums, and mentoring bodies	.80
108	renewed interest/optimism in the future of agriculture through our youth	.92

Count:**10** Std. Dev.:**0.20** Minimum:**0.28** Average:**0.61** Variance:**0.04** Maximum:**0.92** Median:**0.63**

Cluster 5: political process

41	better understanding of how the political process works at the local, state and federal levels	.00
36	increased awareness of legislative issues affecting agriculture	.05
65	getting to know your legislative staffers (in addition to elected officials) and learning how to effectively lobby them	.08
91	developing an improved government perspective and realizing how fortunate we are to be citizens of the USA	.13
53	knowing how to navigate the multitude of agencies involved in regulating food and agriculture	.16
46	improving ability to analyze federal, state and local programs and evaluate their effectiveness	.25
103	understanding that the agricultural industry has impacts at the local, state, national and international levels	.27
89	realizing you can help others understand the political process	.36
71	recognizing the importance of bringing a level of Ag issues awareness to local leadership programs, the media, politicians, government agency staff, and others in public service	.42

Count:**9** Std. Dev.:**0.13** Minimum:**0.00** Average:**0.19** Variance:**0.02** Maximum:**0.42** Median:**0.16**

Cluster 6: personal awareness/reflection

63	realizing that failure is not to be feared; it is your response to failure that counts	.29
5	reducing perceived limitations (in your abilities); realizing you have much to offer; improved self-esteem	.31
3	increased self-awareness and modification of my behavior to more effectively interact with others	.33
28	a significant level of personal growth that provides participants with specific tools or skills that improve leadership performance	.33
26	I hold myself to a higher standard every day and in every aspect of my life; I strive to make more ethical decisions	.33
102	learning that you have a reserve of energy that you can use when you are engaged in something that is meaningful to you, and then sharing that enthusiasm with others	.35
88	recognition of my complacency inspired me to do more and do things differently; I developed an appreciation for excellence and inspiration to do things well	.37
87	practicing reflective consideration of one's profession and/or future and being more open to personal change	.38
10	learning to overcome fears and challenges	.38
95	understanding the importance of ongoing self-reflection to monitor personal weaknesses and recognize when one is "back-sliding" into default or less desirable leadership styles	.38
4	recognizing the importance of life-long learning and forcing yourself to set aside the time to learn	.40
82	your personal relationships tend to improve	.40
85	personal development that creates a vision of leadership from an over-arching perspective	.41
16	learning to overcome, adapt to or embrace change	.42
100	exiting the program with a sense of accomplishment and inspiration, feeling both	.42

	empowered and humbled	
117	increased reflection on personal leadership styles (strengths, weaknesses and limitations)	.43
2	greater confidence in my leadership abilities, to take on larger projects or issues	.43
8	you desire to learn more and look for other, similar (leadership education) opportunities	.43
24	understanding that accomplishing goals may take a long time; patience and persistence will be necessary to effect change	.45
7	improved self-confidence at work and in situations where good public relations skills are required	.51
9	feeling prepared to take on leadership roles or take more risk	.54
14	a tendency toward feeling "superior" to others or becoming frustrated by those around you that may feel inferior	.57
58	exposure to things outside your comfort zone and critiquing/reflecting on your responses to that situation	.65

Count:**23** Std. Dev.:**0.09** Minimum:**0.29** Average:**0.41** Variance:**0.01** Maximum:**0.65** Median:**0.40**

Cluster 7: expectations

111	reinvigorating passion for what you do and discovering new opportunities to be passionate about	.59
110	difficulties of balancing time away from home, family, etc. develops a renewed sense of importance in balancing commitments to family, self, work and community	.63
105	realizing that the time and money invested in participation was well worth it; concerns (about time commitment) at the start of the program were unfounded; realization that you can be away from work and it will still be there when you get back	.67
44	others have high expectations of your leadership abilities and look to you as a leader	.70
80	tendency for over-involvement immediately following participation; need to say "no" to some opportunities	.72
40	you find yourself more in-demand (to serve in leadership positions)	.73
35	realizing that there are high expectations associated with such training and recognizing your responsibility to be involved, you develop a sense of servant leadership	.87
32	strain on the management capabilities of the attendee (difficult to prioritize between the training program and work-related responsibilities)	1.00

Count:**8** Std. Dev.:**0.13** Minimum:**0.59** Average:**0.74** Variance:**0.02** Maximum:**1.00** Median:**0.71**

Cluster 8: networking/teams

17	development of a diverse network of skilled professionals (and resources) within the broader Ag industry that can be called upon at any time for assistance	.46
33	meeting people you otherwise would not have met and development of new relationships and friendships; expanding social and professional networks	.55
77	developing a long-term sense of camaraderie, friendship and membership in a select group; feeling responsible for the stewardship and intentional care of your team	.59
56	opportunities to make contacts and present your business/organization in a positive light (i.e. market yourself or your organization) that increase your organization's exposure or workload	.59
106	improved networking skills resulting in the development of extensive mentoring, peer and friendship networks	.60
116	improved interpersonal and teamwork skills, including how to be a good team member or follower	.70
39	as graduate numbers grow, increasing the pool of highly qualified candidates for jobs, boards, task forces, and committees, larger scale impacts occur over broader contexts	.71
115	realizing that unstructured learning time with classmates and the informal communication that occurs as a result is a tremendous benefit/value in personal and professional development	.73
12	the program strengthens and/or differentiates your resume' from others leading to increased promotion and/or career advancement of participants	.73

18	increased community involvement and membership in more organizations	.77
113	recognizing the power of teams and learning to collaborate with others	.79
51	sharing/spreading good ideas across a wide community (e.g. class or alumni)	.84
104	recognizing the importance of teambuilding as an intentional activity; need to invest time and effort into developing new teams or assimilating new members	.86
23	moving beyond the current workplace philosophy; working towards progress as opposed to preserving the status quo	.88
94	meeting key decision makers in the industry and witnessing first-hand leadership styles/models	.90

Count:**15** Std. Dev.:**0.13** Minimum:**0.46** Average:**0.71** Variance:**0.02** Maximum:**0.90** Median:**0.73**

APPENDIX Q

STATEMENTS BY CLUSTER WITH AVERAGE IMPORTANCE RATINGS
(Final Cluster Solution following Board Interpretation Session)

Cluster 1: recognizing leadership styles

27	ability to recognize leadership potential in others and encourage them to develop and/or use their hidden talents	3.93
92	realizing there is more than one "right way" to lead; changing the way we think about leadership positions	3.92
20	developing ability to motivate/inspire others to serve in leadership roles	3.90
50	realizing you can learn from everyone, even if that means learning what not to do (e.g. learning from examples of bad leadership)	3.84
19	modeling effective leadership and demonstrating your own leadership successes	3.83
55	learning that you can develop other leaders to relieve you of your leadership responsibilities or mitigate generational leadership gaps that may exist	3.64
83	learning to be mindful of the personal constraints of someone else when you are asking them to take a leadership role	3.43
60	realizing that leadership is hard and sometimes good people will lose faith, burnout and disengage	3.35
86	gaining in-depth knowledge about "soft" leadership skills	3.31
1	you recognize leadership deficiencies and become more critical of others in leadership positions	3.01
52	realizing that some leaders may exploit other's leadership weaknesses	2.92

Average: **3.55**

Cluster 2: developing leadership skills

22	having contact with people on multiple sides of an issue and learning to appreciate diversity, new ideas and new ways of thinking	4.31
34	increased ability to consider issues from multiple perspectives, different levels or differing points of view	4.17
64	learning to accept or acknowledge alternate perspectives and forcing yourself to think about the other side(s) of an issue before responding	4.14
76	improving strategic thinking and planning; setting goals and planning how to achieve them	4.07
109	developing a deeper understanding of the issues discussed; taking enough time to evaluate issues before taking a position on them; and generally putting more thought into a concept, idea, issue or project	4.01
93	creating an atmosphere that allows those around you to excel, expanding your sphere of influence	3.99
21	being able to lead an organization through change	3.98
98	understanding personality profiles, being able to assess personalities on teams, and knowing how to match a person's skills/abilities with roles or positions	3.93
73	learning to respect the needs of a diverse community, being able to meet others on their terms through open communication, and responding effectively yet respectfully	3.90
25	developing the ability to find solutions in the ideas and cooperation of others; more inclusive problem solving that leads to increased buy-in in decision making or change efforts	3.83
74	learning how to compromise and increasing your ability to bring divergent groups together on common issues	3.81
84	developing the ability to identify and act upon opportunities; to seize an opportunity in the midst of a crisis	3.74
61	knowing conflict and it's resolution are often a necessary aspect of change	3.72
96	developing better time management skills	3.71
69	exposure to different perspectives and leadership styles through enhanced opportunities for travel	3.70
43	developing the ability to analyze an issue at a global level and bring that analysis down to a local level	3.60

90	developing strategies to implement leadership skills that you learned and prioritize leadership roles you take on	3.60
15	knowing where to find and how to utilize resources	3.49
78	learning to understand the power structure of an organization and how to work within it	3.39
49	learning how to dress appropriately for the occasion and understanding how appearance and professional behavior can influence how others relate to you	3.26
79	assessing a current business model, incubation of new ideas, recognizing the capability/potential to diversify	3.25
101	it broadened the type of reading I did	2.91
47	improvements in employee recruitment or retention as a result of presenting a positive image of a business or organization	2.85
42	enhanced ability to do fundraising for other programs	2.68

Average: **3.67**

Cluster 3: communication skills

37	general improvement in communication and presentation skills	4.21
54	improved listening skills	4.13
66	improving presentation and organization of thoughts; learning to fine-tune statements or arguments around specific issues; keeping messages short and to the point	3.98
48	developing increased confidence in communicating with people	3.98
31	improved conflict resolution skills, including ability to deal with difficult people and/or controversial subjects, and to assess conflict resolution efforts	3.90
59	improved facilitation skills (e.g. leading a Q&A session, speaker introductions)	3.89
11	thinking more critically about sources of information and looking for accurate information	3.89
45	learning the "art of conversation", including knowing when to keep quiet and how to communicate or interact with different personalities	3.80
75	learning how to ask good questions	3.76
97	learning to communicate or work more effectively with the media	3.75
72	developing skills to create a vision of the future and learning how to put that vision into words	3.73
68	realizing the importance of having organized meetings and using an agenda	3.70
57	learning how to run an effective meeting	3.70
38	learning and developing the arts of persuasion and negotiation	3.64
67	improving event management skills; ability to plan, organize, implement and assess a program, class or tour	3.54
81	practicing debate skills that allow you to see both sides of an issue	3.40
62	learning how to develop an agenda and being able to train others on how to allocate time on meeting agendas	3.26

Average: **3.78**

Cluster 4: broadened knowledge/awareness (of food & ag system)

13	I developed a broader, more complete perspective of NYS agriculture, and learned about many of the issues, obstacles, technologies and practices common to the industry	4.31
99	exposure to areas, organizations or resources that you would otherwise never have been exposed to	4.18
112	developing a better understanding of the "big picture" of the food and agriculture system; appreciating the interconnectedness and complexity of the whole farm-food system	4.11
103	understanding that the agricultural industry has impacts at the local, state, national and international levels	3.88
107	developing a broader knowledge of the value of agriculture (beyond food production), e.g. the social and environmental benefits of maintaining farms	3.81
70	learning how to advocate for the Ag industry	3.77
30	developing a desire to promote my industry and affiliated organizations	3.53
6	my experiences and knowledge of other cultures has grown through enhanced opportunities for travel	3.52
108	renewed interest/optimism in the future of agriculture through our youth	3.48
114	learning that producers should make or grow what consumers want; don't assume consumers	3.25

	will buy what producers make or grow	
29	the development and proliferation of new civic groups, local leadership programs, agricultural organizations, forums, and mentoring bodies	3.04
		Average: **3.72**

Cluster 5: political awareness

36	increased awareness of legislative issues affecting agriculture	3.92
41	better understanding of how the political process works at the local, state and federal levels	3.85
71	recognizing the importance of bringing a level of Ag issues awareness to local leadership programs, the media, politicians, government agency staff, and others in public service	3.79
65	getting to know your legislative staffers (in addition to elected officials) and learning how to effectively lobby them	3.29
46	improving ability to analyze federal, state and local programs and evaluate their effectiveness	3.27
53	knowing how to navigate the multitude of agencies involved in regulating food and agriculture	3.25
91	developing an improved government perspective and realizing how fortunate we are to be citizens of the USA	3.16
89	realizing you can help others understand the political process	3.08
		Average: **3.45**

Cluster 6: personal development

3	increased self-awareness and modification of my behavior to more effectively interact with others	.4.41
2	greater confidence in my leadership abilities, to take on larger projects or issues	4.37
117	increased reflection on personal leadership styles (strengths, weaknesses and limitations)	4.22
28	a significant level of personal growth that provides participants with specific tools or skills that improve leadership performance	4.18
9	feeling prepared to take on leadership roles or take more risk	4.14
7	improved self-confidence at work and in situations where good public relations skills are required	4.04
100	exiting the program with a sense of accomplishment and inspiration, feeling both empowered and humbled	3.98
58	exposure to things outside your comfort zone and critiquing/reflecting on your responses to that situation	3.98
4	recognizing the importance of life-long learning and forcing yourself to set aside the time to learn	3.92
10	learning to overcome fears and challenges	3.87
26	I hold myself to a higher standard every day and in every aspect of my life; I strive to make more ethical decisions	3.85
16	learning to overcome, adapt to or embrace change	3.84
5	reducing perceived limitations (in your abilities); realizing you have much to offer; improved self-esteem	3.72
95	understanding the importance of ongoing self-reflection to monitor personal weaknesses and recognize when one is "back-sliding" into default or less desirable leadership styles	3.69
24	understanding that accomplishing goals may take a long time; patience and persistence will be necessary to effect change	3.59
85	personal development that creates a vision of leadership from an over-arching perspective	3.59
63	realizing that failure is not to be feared; it is your response to failure that counts	3.58
87	practicing reflective consideration of one's profession and/or future and being more open to personal change	3.53
8	you desire to learn more and look for other, similar (leadership education) opportunities	3.43
82	your personal relationships tend to improve	3.38
88	recognition of my complacency inspired me to do more and do things differently; I developed an appreciation for excellence and inspiration to do things well	3.21
102	learning that you have a reserve of energy that you can use when you are engaged in something that is meaningful to you, and then sharing that enthusiasm with others	3.17
14	a tendency toward feeling "superior" to others or becoming frustrated by those around you	1.75

	that may feel inferior	
		Average: **3.72**

Cluster 7: challenges & expectations

105	realizing that the time and money invested in participation was well worth it; concerns (about time commitment) at the start of the program were unfounded; realization that you can be away from work and it will still be there when you get back	3.86
111	reinvigorating passion for what you do and discovering new opportunities to be passionate about	3.61
35	realizing that there are high expectations associated with such training and recognizing your responsibility to be involved, you develop a sense of servant leadership	3.53
110	difficulties of balancing time away from home, family, etc. develops a renewed sense of importance in balancing commitments to family, self, work and community	3.46
44	others have high expectations of your leadership abilities and look to you as a leader	3.25
40	you find yourself more in-demand (to serve in leadership positions)	3.20
80	tendency for over-involvement immediately following participation; need to say "no" to some opportunities	3.11
32	strain on the management capabilities of the attendee (difficult to prioritize between the training program and work-related responsibilities)	2.68
		Average: **3.34**

Cluster 8: networking, relationships & teams

17	development of a diverse network of skilled professionals (and resources) within the broader Ag industry that can be called upon at any time for assistance	4.31
33	meeting people you otherwise would not have met and development of new relationships and friendships; expanding social and professional networks	4.31
115	realizing that unstructured learning time with classmates and the informal communication that occurs as a result is a tremendous benefit/value in personal and professional development	4.02
106	improved networking skills resulting in the development of extensive mentoring, peer and friendship networks	3.98
104	recognizing the importance of teambuilding as an intentional activity; need to invest time and effort into developing new teams or assimilating new members	3.98
94	meeting key decision makers in the industry and witnessing first-hand leadership styles/models	3.98
116	improved interpersonal and teamwork skills, including how to be a good team member or follower	3.98
113	recognizing the power of teams and learning to collaborate with others	3.97
23	moving beyond the current workplace philosophy; working towards progress as opposed to preserving the status quo	3.86
77	developing a long-term sense of camaraderie, friendship and membership in a select group; feeling responsible for the stewardship and intentional care of your team	3.86
39	as graduate numbers grow, increasing the pool of highly qualified candidates for jobs, boards, task forces, and committees, larger scale impacts occur over broader contexts	3.72
18	increased community involvement and membership in more organizations	3.57
56	opportunities to make contacts and present your business/organization in a positive light (i.e. market yourself or your organization) that increase your organization's exposure or workload	3.54
51	sharing/spreading good ideas across a wide community (e.g. class or alumni)	3.44
12	the program strengthens and/or differentiates your resume' from others leading to increased promotion and/or career advancement of participants	2.93
		Average: **3.83**

APPENDIX R

LEADNY RECRUITMENT OBJECTIVES
(As taken from the strategic plans dated 9-15-05 and 1-9-08)

Recruitment

No other outcome is as important as a successful recruitment effort. A sound curriculum, healthy budget, adequate staff and positive image mean nothing if we do not have a qualified group of participants to work with. Furthermore, we have long recognized that our participants learn as much from each other as they do from the program speakers, so diversity in the class makeup is central to providing a rich experience for all those involved. To that end, we seek to:

1. Attract a pool of at least 40 qualified applicants, and maintain or grow that number gradually in future classes
    a. Utilize alumni, current class members and Board members as our primary vehicle of word-of-mouth recruitment
    b. Set aside a reasonable amount in each budget for advertisements and other media to promote the program
    c. Continue to hire a part-time PR consultant to write articles, press releases, etc. that will reach a wide audience
    d. Director, staff, Board members and alumni should attend as many industry related functions as the schedule and budget will allow to make the Program visible and educate prospective applicants
2. Select a final class of 25 – 30 participants with diversity in race, gender, age, educational background, professional experience and geographic location
    a. Selection committee should consider the ultimate diversity of the new class in total, in addition to the qualifications of the individual applicants, when making selections of new class members
    b. When possible, an effort should be made to have production agriculture well represented in the class
3. Attract the highest quality applicants possible, those that are truly committed to full participation in the program, making it a truly competitive process
    a. A good problem to have is to be forced to turn away well-qualified applicants. The process should be handled in a sensitive manner to encourage reapplication for future classes.
    b. Foster a sense throughout the industry that LEAD New York is truly an elite program, and that it is an honor to be offered a position in the program

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